



January 3, 2022

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

**Re: Release Characterization and Closure Request  
ConocoPhillips  
Warren Unit 027 Release  
Unit Letter O, Section 20, Township 20 South, Range 38 East  
Lea County, New Mexico  
Incident ID NOY1827142978**

1. OCD approves deferment of soil remediation and surface reclamation until gas well is plugged and abandoned.
2. Based on lab data and position of AH-3, OCD does not deem the release to be fully delineated and will require its lateral extent to be investigated surrounding AH-3 at time of site closure.

Sir or Madam:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips (COP) to assess a release that occurred at the Warren Unit #027 well (API No. 30-025-07830). The release footprint is located in Public Land Survey System (PLSS) Unit Letter O, Section 20, Township 20 South, Range 38 East, in Lea County, New Mexico (Site). The approximate release point occurred at coordinates 32.5531311° -103.1695633°, as shown on Figures 1 and 2.

## BACKGROUND

According to the State of New Mexico C-141 Initial Report (Appendix A), the release was discovered on September 19, 2018. The reported release occurred due to a flowline leak and consisted of 9 barrels (bbls) of produced water and 4.9 bbls of oil, of which 8 bbls of produce water and 2.9 bbls of oil were recovered. The New Mexico Oil Conservation Division (NMOCD) received the Form C-141 for the release on September 28, 2018. The NMOCD Incident ID for this release is NOY1827142978.

## SITE CHARACTERIZATION

A site characterization was performed and no sinkholes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, playa lakes, stream bodies, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the distances specified in 19.15.29 New Mexico Administrative Code (NMAC). The Site is in an area of low karst potential.

According to the New Mexico Office of the State Engineers (NMOSE) reporting system, there are no water wells located within an 800-meter (approximately ½-mile) radius of the release location. There is one (1) water well with water level data within 1.86 miles (3,000 meters) of the Site with a depth to groundwater at 50 feet below ground surface (bgs).

The remediation action levels proposed for the site are largely dependent upon depth to groundwater. As such, the OCD focuses upon depth to water estimation. Thus, 19.15.11(A)(2) NMAC allows for various means of determining depth to groundwater. For this release, as the available water level information was from wells further than ½ mile away from the site, COP reviewed adjacent release sites with approved Work Plans for the possibility of associated borings which could provide a means for determining depth to groundwater in the vicinity of the NOY1827142978 release area. As such, subsurface data from the SEMU BMT Battery Tank Release Site (NOY1727735399) was reviewed.

Tetra Tech

901 West Wall St., Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

One boring (BH-2A/2R) drilled as a portion of the SEMU BMT Battery Tank release characterization was identified as located within roughly a ½ mile radius of the Warren Unit #27 release footprint. A review of the associated boring logs indicates that boring BH-4 does not define depth to groundwater but was dry to a depth of 51 feet bgs. The borehole was plugged with 3/8" bentonite chips on September 23, 2021. The borehole coordinates are 32.553388°, -103.175938°. Thus, based on this data, COP proposes to use the 51 feet - 100 feet criteria listed in Table I of 19.15.29.12 NMAC. The boring logs from the SEMU BMT Battery Tank Release investigation are included in Appendix B. The remainder of the site characterization data is also included in Appendix B.

## REGULATORY FRAMEWORK

Based upon the release footprint and in accordance with Subsection E of 19.15.29.12 NMAC, per 19.15.29.11 NMAC, the site characterization data was used to determine recommended remedial action levels (RRALs) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX), total petroleum hydrocarbons (TPH), and chlorides in soil.

Based on the site characterization, established depth to groundwater, and in accordance with Table I of 19.15.29.12 NMAC, the RRALs for the Site are as follows:

Constituent	Site RRALs
Chloride	10,000 mg/kg
TPH	2,500 mg/kg
BTEX	50 mg/kg

## REVIEW OF AERIAL IMAGERY AND SITE VISIT

Based on a review of aerial imagery from 2019, a portion of the Warren Unit #27 well pad appears to have been excavated prior to February 2019. The approximate release extent was inferred from the outline of the excavated area and information from the C-141. Documentation regarding remediation and confirmation sampling was not available at the time of this report. Figure 3 provides an aerial image of the on-pad excavation.

At the request of ConocoPhillips, Tetra Tech personnel conducted a site visit in November 2021 at the release area to evaluate current conditions at the Site. The formerly impacted area was identified from the description in the C-141 and correspondence with ConocoPhillips, and it was corroborated by aerial imagery review. The release footprint indicated in Figure 4 appears to coincide with the excavated area observed in aerial Imagery. Photographic documentation from the visual assessment is included as Appendix D. No staining was noted at the release point, nor on-pad, and the excavated area appeared to have been backfilled.

## SITE ASSESSMENT AND SAMPLING RESULTS

In order to confirm the efficacy of remedial activities, Tetra Tech personnel conducted soil sampling within and around the excavated area on December 1, 2021 on behalf of ConocoPhillips. A total of seven (7) borings (AH-1 through AH-7) were installed using a hand auger. Two (2) borings (AH-6 and AH-7) were installed within the inferred release extent to depths of 4 feet bgs. Five (5) borings (AH-1 through AH-5) were installed around the perimeter of the observed excavation extent to horizontally delineate the incident area. Figure 4 depicts the inferred release extent and the December 2021 soil boring locations. Soils at the site consist of dry, light brown to brown, silty sand (SM) overlying cemented sands, typically referred to as caliche.

A total of twenty-one (21) soil samples were collected from the seven (7) locations within and surrounding the release extent. These soil samples were sent to Cardinal Laboratories to be analyzed for chloride via

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ConocoPhillips

EPA Method 300.0, TPH via EPA Method 8015M and BTEX via EPA Method 8260B. A copy of the laboratory analytical report and chain-of-custody documentation are included in Appendix C.

All analytical results were below Site RRALs. The analytical results associated with sample location AH-3 exceeded the reclamation requirement for chloride of 600 mg/kg in the upper 1-foot depth interval. Horizontal and vertical delineation were achieved during the assessment. Photographic documentation of the release area is included as Appendix D.

#### **SITE RECLAMATION AND RESTORATION PLAN**

Based on the site characterization, the remaining soils on the production lease pad meet the closure criteria of Table I of 19.15.29.12 NMAC. In accordance with 19.15.29.12 and 19.15.29.13 NMAC, final reclamation of any impact within the lease pad area shall take place once the Site is no longer being used for oil and gas operations. Therefore, reclamation of the soils located within the confines of the Warren Unit #27 well pad will be delayed until the abandonment of the Warren Unit #27 well.

#### **CONCLUSION**

Based on the results of the site assessment, ConocoPhillips considers the current release footprint to be fully delineated. All analytical results associated with the site assessment were below Site RRALs; therefore, further remediation of the release footprint is deemed unnecessary. The contamination is located atop an active well pad and around production equipment and does not cause an imminent risk to human health, the environment, or groundwater.

Based on the above, ConocoPhillips respectfully requests closure of this release and that NMOCD will consider delaying reclamation activities at the Site until the end of life of the well. Final reclamation shall take place in accordance with 19.15.29.13 NMAC once the site is no longer being used for oil and gas operations. The final C-141 forms are enclosed in Appendix A. If you have any questions concerning the soil assessment activities for the Site, please call me at (512) 338-2861.

Sincerely,

**Tetra Tech, Inc.**



Christian M. Llull, P.G.  
Program Manager

cc:  
Ms. Kelsy Waggaman, GPBU - ConocoPhillips

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ConocoPhillips

## LIST OF ATTACHMENTS

### Figures:

- Figure 1 – Overview Map
- Figure 2 – Topographic Map
- Figure 3 – Remedial Extent – 2019 Aerial Imagery
- Figure 4 – Approximate Release Extent and Assessment

### Tables:

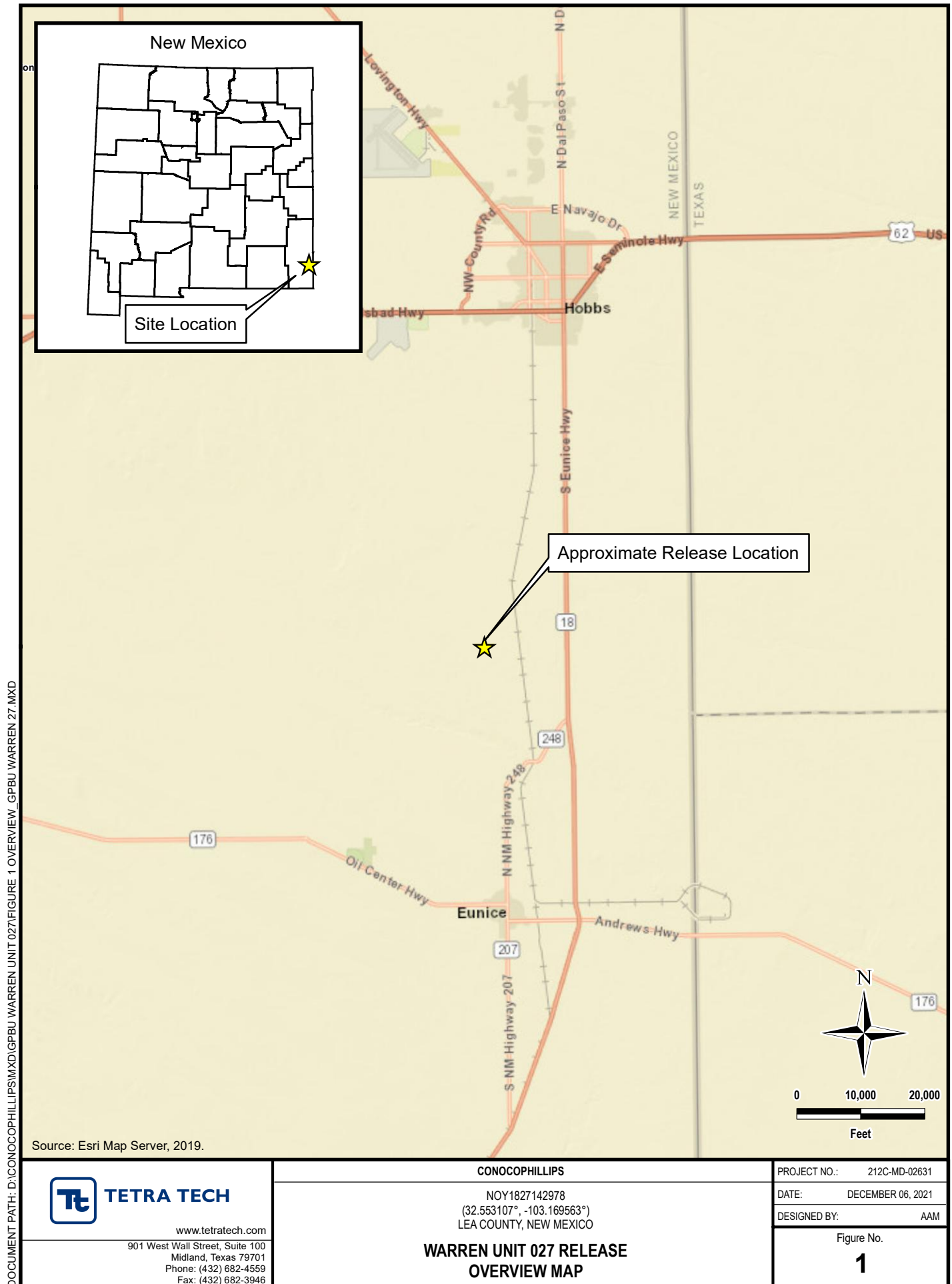
- Table 1 – Summary of Analytical Results – Soil Assessment

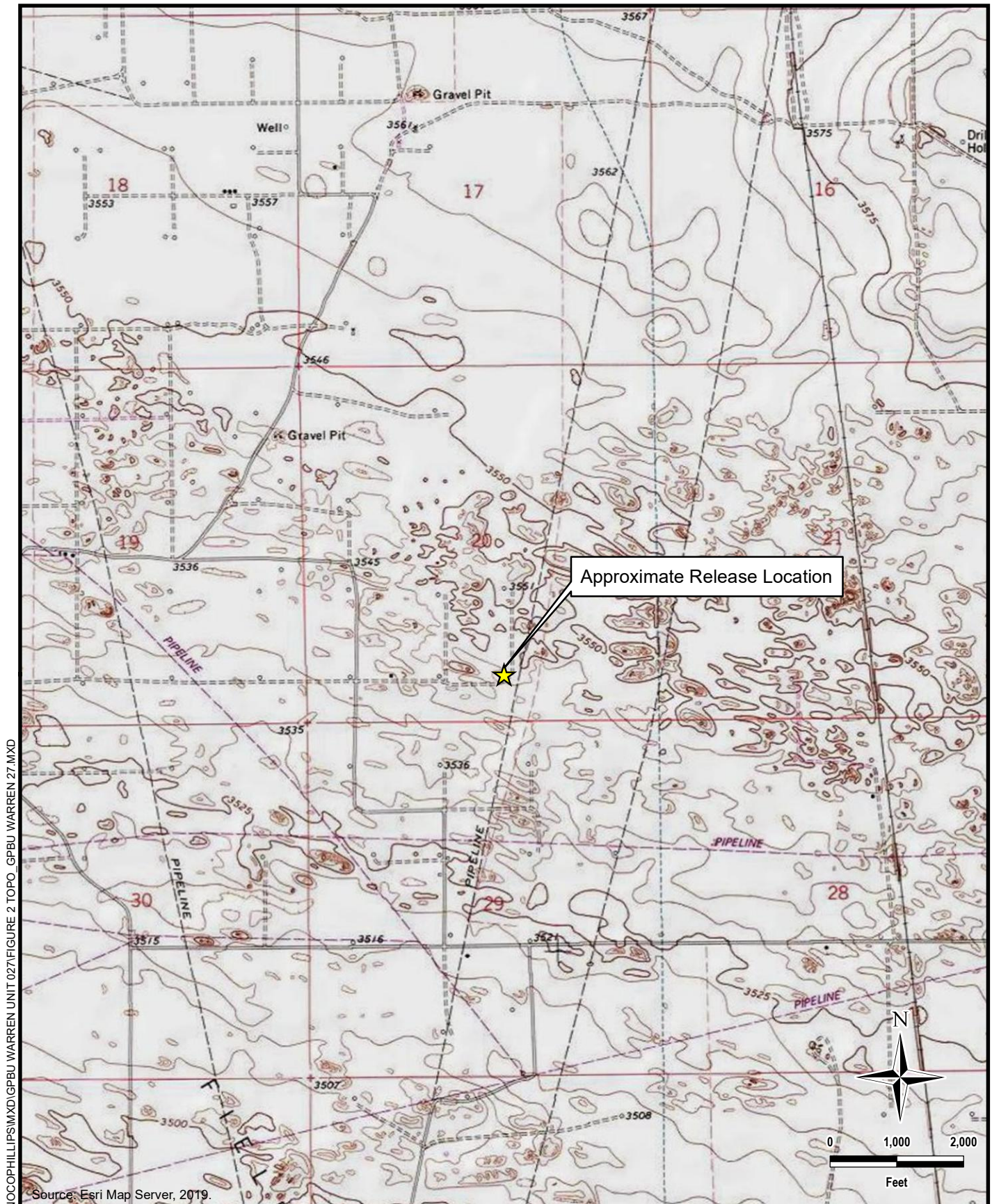
### Appendices:

- Appendix A – C-141 Forms
- Appendix B – Site Characterization Data
- Appendix C – Laboratory Analytical Report
- Appendix D – Photographic Documentation



## **FIGURES**





DOCUMENT PATH: D:\CONOCOPHILLIPS\MXD\GPBU WARREN UNIT 027\FIGURE 2 TOPO GPBU WARREN 27.MXD


**TETRA TECH**
[www.tetrattech.com](http://www.tetrattech.com)

 901 West Wall Street, Suite 100  
 Midland, Texas 79701  
 Phone: (432) 682-4559  
 Fax: (432) 682-3946

CONOCOPHILLIPS

 NOY1827142978  
 (32.553107°, -103.169563°)  
 LEA COUNTY, NEW MEXICO

**WARREN UNIT 027 RELEASE  
 TOPOGRAPHIC MAP**

PROJECT NO.: 212C-MD-02631

DATE: DECEMBER 06, 2021

DESIGNED BY: AAM

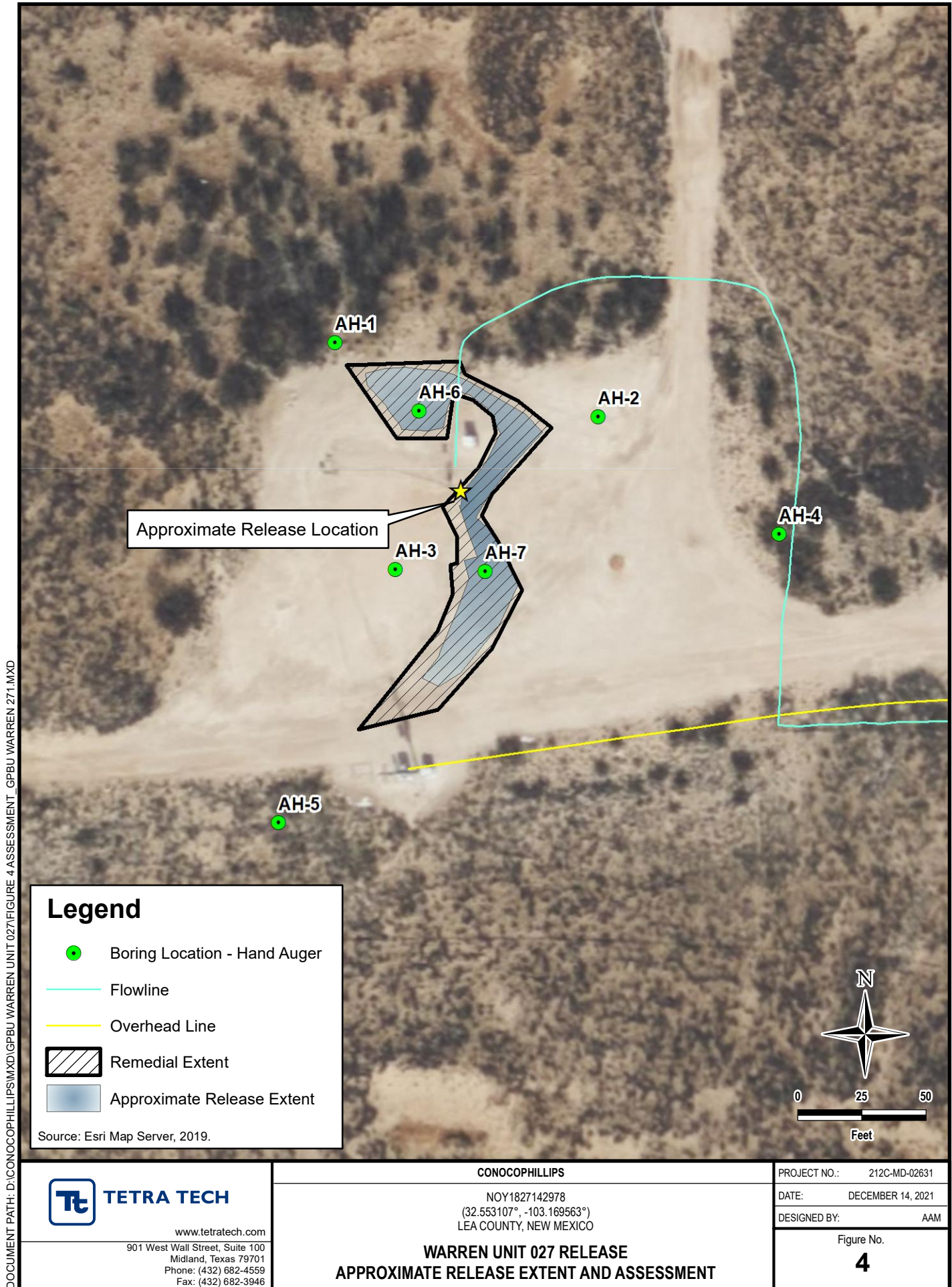
Figure No.

**2**









## **TABLES**

TABLE 1  
SUMMARY OF ANALYTICAL RESULTS  
SOIL ASSESSMENT - NOY1827142978  
CONOCOPHILLIPS  
WARREN UNIT #27 FLOWLINE RELEASE  
LEA COUNTY, NM

Sample ID	Sample Date	Sample Depth	Field Screening Results	Chloride <sup>1</sup>		BTEX <sup>2</sup>										TPH <sup>3</sup>									
			Chloride			Benzene		Toluene		Ethylbenzene		Total Xylenes		Total BTEX		GRO		DRO		EXT DRO		Total TPH (GRO+DRO+EXT DRO)			
			ft. bgs	ppm	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	mg/kg	Q	C <sub>6</sub> - C <sub>10</sub>	mg/kg	Q	> C <sub>10</sub> - C <sub>28</sub>	mg/kg		Q	> C <sub>28</sub> - C <sub>36</sub>	mg/kg
AH-1	12/1/2021	0-1	19.4	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		1-2	14.8	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	9.2	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
AH-2	12/1/2021	0-1	43.4	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		1-2	24.7	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	23.0	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
AH-3	12/1/2021	0-1	1,690	2,030		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		1-2	294	304		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	221	272		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
AH-4	12/1/2021	0-1	38.0	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		1-2	20.4	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	13.5	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
AH-5	12/1/2021	0-1	31.6	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		1-2	26.5	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	33.3	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
AH-6	12/1/2021	0-1	80.2	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	59.2	48.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		3-4	65.1	80.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
AH-7	12/1/2021	0-1	80.0	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		2-3	34.9	16.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-
		3-4	32.8	32.0		< 0.050		< 0.050		< 0.050		< 0.150		< 0.300		< 10.0		< 10.0		< 10.0					-

## NOTES:

ft. Feet

***Bold and italicized values indicate exceedance of Reclamation limits***

bgs Below ground surface

mg/kg Milligrams per kilogram

TPH Total Petroleum Hydrocarbons

GRO Gasoline range organics

DRO Diesel range organics

1 Method SM4500CI-B

2 Method 8021B

3 Method 8015M

## **APPENDIX A C-141 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	NOY1827142978
District RP	1RP-5215
Facility ID	
Application ID	pOY1827142516

## Release Notification

### Responsible Party

Responsible Party Justin Wright	OGRID 217817
Contact Name Justin Wright	Contact Telephone 973-727-4779
Contact email Justin.Wright@conocophillips.com	Incident # (assigned by OCD) NOY1827142978
Contact mailing address 29 Vacuum Complex Lane Lovington, NM 88240	

### Location of Release Source

Latitude 32.5531311 Longitude -103.1695633  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Warren Unit #27	Site Type: Producing Well
Date Release Discovered: 9-19-2018	API# (if applicable) 30-025-07830

Unit Letter	Section	Township	Range	County
O	20	20S	38E	Lea

Federal minerals

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 checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 4.9	Volume Recovered (bbls) 2.9
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 9	Volume Recovered (bbls) 8
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Flowline leak

Incident ID	
District RP	
Facility ID	
Application ID	

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

### Initial Response

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

<input 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 <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Cullen Rosine</u>	Title: <u>HSE Specialist</u>
Signature: <u>Cullen Rosine</u>	Date: <u>9-27-2018</u>
email: <u>Cullen.J.Rosine@conocophillips.com</u>	Telephone: <u>973-727-4779</u>
<b>OCD Only</b>	
Received by: <u>By Olivia Yu at 12:02 pm, Sep 28, 2018</u>	Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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

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

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

### **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

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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: Kelley Jayaram 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: Kelly W. Jorgensen 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: Nelson Velez Date: \_\_\_\_\_

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

## **APPENDIX B**

### **Site Characterization Data**

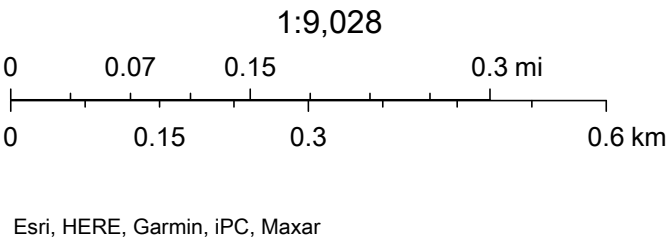


# OCD Waterbodies Map



12/1/2021, 1:14:00 PM

- OSE Water-bodies
- PLJV Probable Playas
- OSE Streams







# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">L 09918</a>	L	LE		4	2	21	20S	38E		673954	3604063*	2254	135		
<a href="#">L 02109</a>	L	LE		2	4	2	18	20S	38E	670803	3605719*	2707	124	50	74

Average Depth to Water: **50 feet**

Minimum Depth: **50 feet**

Maximum Depth: **50 feet**

Record Count: 2

### UTMNAD83 Radius Search (in meters):

**Easting (X):** 671860.94

**Northing (Y):** 3603226.25

**Radius:** 3000

\*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.

12/1/21 12:09 PM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

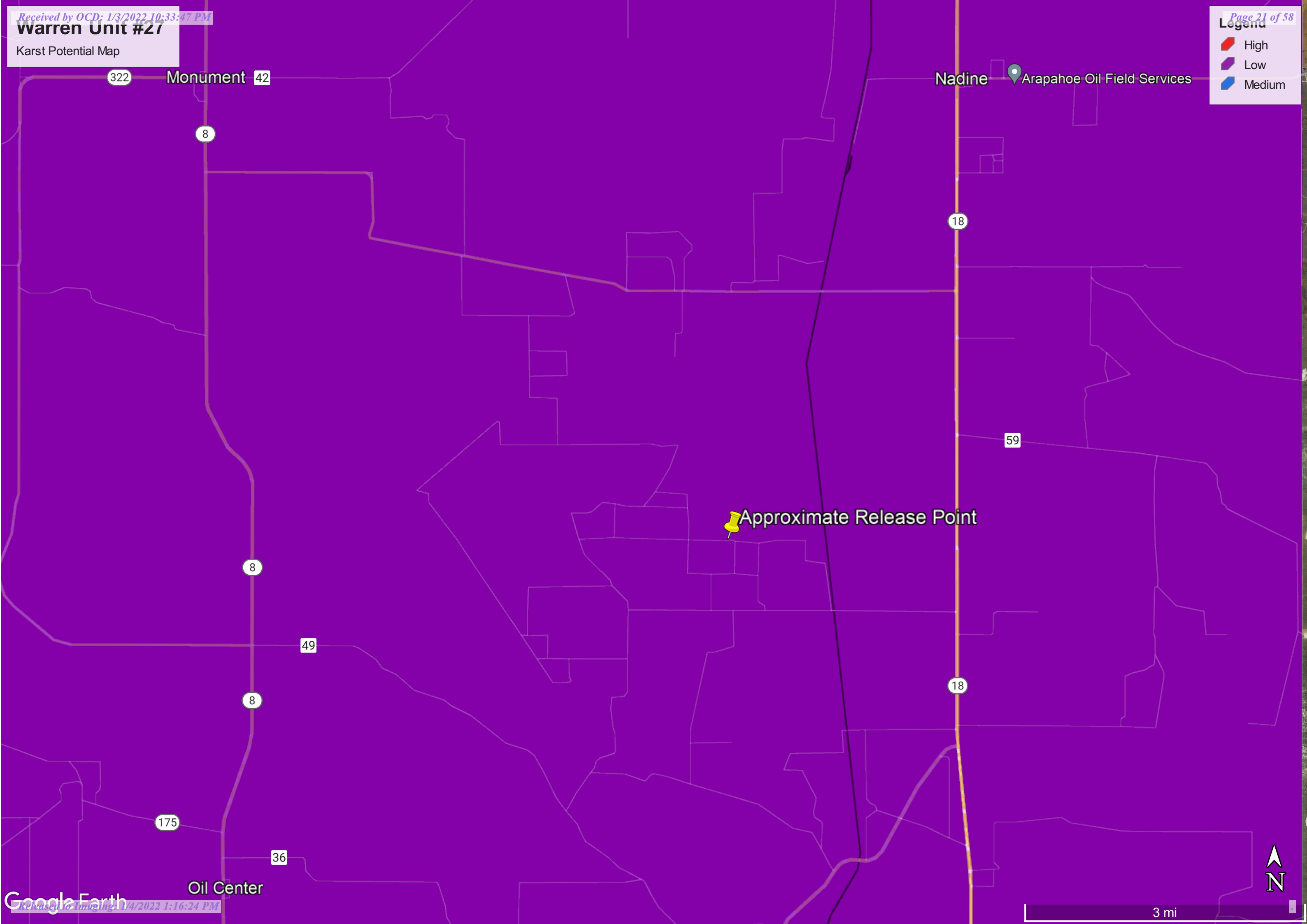


# Warren Unit #27

Karst Potential Map

## Legend

- High
- Low
- Medium



Nadine

Arapahoe Oil Field Services

Approximate Release Point

Monument 42

Oil Center

3 mi

212C-MD-02101		<b>TETRA TECH</b>		<b>LOG OF BORING BH-2R/2A</b>				Page 1 of 2	
Project Name: SEMU BMT Battery Tank Release									
Borehole Location: 32.553388°, -103.175938°					Surface Elevation: 3544 ft				
Borehole Number: BH-2R/2A				Borehole Diameter (in.): 6		Date Started: 8/6/2020		Date Finished: 9/23/2020	

DEPTH (ft)	OPERATION TYPE	SAMPLE	CHLORIDE FIELD SCREENING (ppm)	VOC FIELD SCREENING (ppm)	SAMPLE RECOVERY (%)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	WATER LEVEL OBSERVATIONS				
												While Drilling <input type="checkbox"/> Dry ft	Upon Completion of Drilling <input type="checkbox"/> Dry ft			
												Remarks:				
												MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS		
5													<b>-SM-</b> SILTY SAND; Light brown to reddish brown, loose, fine to very fine-grained, with abundant hydrocarbon staining, heavy hydrocarbon odor.		BH-2R (0'-1')	
															BH-2R (2'-3')	
															BH-2R (4'-5')	
															BH-2R (6'-7')	
10															BH-2R (9'-10')	
15															BH-2R (14'-15')	
20													<b>-ML-</b> SANDY SILT; Light tan to white, dense, medium to fine-grained, with caliche and calcrete layers throughout. Trace hydrocarbon odor, no hydrocarbon staining. -- Cemented 19'-19.5' -- Moderately cemented 19.5'-22'  -- Well cemented with caliche layers 22'-39'  -- Upper 25' of boring 2R completed with DPT rig by HCl drilling. Scarborough drilling reamed out upper 25' at BH-2A and installed 8" PVC Surface casing to preserve borehole integrity. 25'-65' drilled with air rotary methods.		BH-2R (20'-21')	
															BH-2R (21'-22')	
															BH-2R (22'-23')	
															BH-2R (23'-24')	
25																BH-2A (29'-30')
30																BH-2A (34'-35')
35																

Sampler Types: <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Split Spoon  <input checked="" type="checkbox"/> Shelby  <input checked="" type="checkbox"/> Bulk Sample  <input checked="" type="checkbox"/> Grab Sample         </div> <div style="width: 50%;"> <input checked="" type="checkbox"/> Acetate Liner  <input checked="" type="checkbox"/> Vane Shear  <input checked="" type="checkbox"/> California  <input checked="" type="checkbox"/> Test Pit         </div> </div>	Operation Types: <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Mud Rotary  <input checked="" type="checkbox"/> Continuous Flight Auger  <input checked="" type="checkbox"/> Wash Rotary         </div> <div style="width: 50%;"> <input checked="" type="checkbox"/> Hand Auger  <input checked="" type="checkbox"/> Air Rotary  <input checked="" type="checkbox"/> Direct Push  <input checked="" type="checkbox"/> Core Barrel         </div> </div>	Notes: Analytical samples are shown in the remarks column above. Surface elevations are estimated from Google Earth data.
---	---	---

Logger: Joe Tyler	Drilling Equipment: Direct Push/Air Rotary	Driller: HCl Drilling & Scarborough Drilling
-------------------	--	--

212C-MD-02101		<b>TETRA TECH</b>		<b>LOG OF BORING BH-2R/2A</b>				Page 2 of 2								
Project Name: SEMU BMT Battery Tank Release																
Borehole Location: 32.553388°, -103.175938°						Surface Elevation: 3544 ft										
Borehole Number: BH-2R/2A				Borehole Diameter (in.): 6		Date Started: 8/6/2020		Date Finished: 9/23/2020								
DEPTH (ft)	OPERATION TYPE	SAMPLE	CHLORIDE FIELD SCREENING (ppm)	VOC FIELD SCREENING (ppm)	SAMPLE RECOVERY (%)	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	LIQUID LIMIT	PLASTICITY INDEX	MINUS NO. 200 (%)	GRAPHIC LOG	<b>WATER LEVEL OBSERVATIONS</b> While Drilling <u>▽</u> <u>Dry</u> ft    Upon Completion of Drilling <u>▽</u> <u>Dry</u> ft Remarks:				
												MATERIAL DESCRIPTION	DEPTH (ft)	REMARKS		
40				462										39	- <b>SP</b> - SILTY SAND; Tan, loose to medium-dense, with high hydrocarbon odor, with no hydrocarbon staining.  -- well-cemented and lithified in layers.	BH-2A (39'-40')
45				321												BH-2A (44'-45')
50				230												BH-2A (49'-50')
55				153										54	- <b>SM</b> - SILTY SAND; Dark tan, loose to medium-dense, with trace hydrocarbon odor, with no hydrocarbon staining.	BH-2A (54'-55')
60				121										59	- <b>SM</b> - SILTY SAND; Dark tan, loose to medium-dense, with no hydrocarbon odor, with no hydrocarbon staining.	BH-2A (59'-60')
65				11.2										65	BH-2A (64'-65')	
Bottom of borehole at 65.0 feet.																
Sampler Types:		<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Acetate Liner <input type="checkbox"/> Shelby <input type="checkbox"/> Vane Shear <input type="checkbox"/> Bulk Sample <input type="checkbox"/> California <input type="checkbox"/> Grab Sample <input type="checkbox"/> Test Pit		Operation Types:		<input type="checkbox"/> Hand Auger <input type="checkbox"/> Mud Rotary <input type="checkbox"/> Air Rotary <input type="checkbox"/> Continuous Flight Auger <input type="checkbox"/> Direct Push <input type="checkbox"/> Wash Rotary <input type="checkbox"/> Core Barrel		Notes: Analytical samples are shown in the remarks column above. Surface elevations are estimated from Google Earth data.								
Logger: Joe Tyler				Drilling Equipment: Direct Push/Air Rotary				Driller: HCI Drilling & Scarborough Drilling								

## **APPENDIX C**

### **Analytical Data**



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

---

December 03, 2021

CHRISTIAN LLULL

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: WARREN UNIT #27 FLOW LINE RELEASE

Enclosed are the results of analyses for samples received by the laboratory on 12/01/21 16:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 1 ( 0-1' ) (H213442-01)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEX	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.6 % 69.9-140

Chloride, SM4500Cl-B		mg/kg	Analyzed By: GM							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	227	114	200	11.1	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	229	115	200	9.98	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 126 % 44.3-133

Surrogate: 1-Chlorooctadecane 133 % 38.9-142

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 1 ( 1-2' ) (H213442-02)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.3 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 125 % 44.3-133

Surrogate: 1-Chlorooctadecane 128 % 38.9-142

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 1 ( 2-3' ) (H213442-03)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.6 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 109 % 44.3-133

Surrogate: 1-Chlorooctadecane 112 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 2 ( 0-1' ) (H213442-04)**

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	12/02/2021	ND	2.00	100	2.00	9.38	
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3	
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1	
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4	
Total BTEx	<0.300	0.300	12/02/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.3 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	12/02/2021	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 98.7 % 44.3-133

Surrogate: 1-Chlorooctadecane 108 % 38.9-142

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 2 ( 1-2' ) (H213442-05)**

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	12/02/2021	ND	2.00	100	2.00	9.38	
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3	
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1	
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4	
Total BTEx	<0.300	0.300	12/02/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 113 % 44.3-133

Surrogate: 1-Chlorooctadecane 124 % 38.9-142

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 2 ( 2-3' ) (H213442-06)**

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	12/02/2021	ND	2.00	100	2.00	9.38	
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3	
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1	
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4	
Total BTEx	<0.300	0.300	12/02/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.4 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 124 % 44.3-133

Surrogate: 1-Chlorooctadecane 136 % 38.9-142

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 3 ( 0-1' ) (H213442-07)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2030	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 95.1 % 44.3-133

Surrogate: 1-Chlorooctadecane 103 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 3 ( 1-2' ) (H213442-08)**

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	12/02/2021	ND	2.00	100	2.00	9.38	
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3	
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1	
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4	
Total BTEx	<0.300	0.300	12/02/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	304	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 106 % 44.3-133

Surrogate: 1-Chlorooctadecane 119 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 3 ( 2-3' ) (H213442-09)**

BTEx 8021B		mg/kg		Analyzed By: MS/					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/02/2021	ND	2.00	100	2.00	9.38	
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3	
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1	
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4	
Total BTEx	<0.300	0.300	12/02/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	272	16.0	12/02/2021	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 105 % 44.3-133

Surrogate: 1-Chlorooctadecane 111 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 4 ( 0-1' ) (H213442-10)**

BTEx 8021B		mg/kg		Analyzed By: MS/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 97.2 % 44.3-133

Surrogate: 1-Chlorooctadecane 98.1 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 4 ( 1-2' ) (H213442-11)**

BTEX 8021B		mg/kg		Analyzed By: MS/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEX	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 115 % 44.3-133

Surrogate: 1-Chlorooctadecane 119 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 4 ( 2-3' ) (H213442-12)**

BTEx 8021B		mg/kg		Analyzed By: MS/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 115 % 44.3-133

Surrogate: 1-Chlorooctadecane 119 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 5 ( 0-1' ) (H213442-13)**

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	12/02/2021	ND	2.00	100	2.00	9.38	
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3	
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1	
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4	
Total BTEX	<0.300	0.300	12/02/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 93.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 96.8 % 44.3-133

Surrogate: 1-Chlorooctadecane 101 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 5 ( 1-2' ) (H213442-14)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 108 % 44.3-133

Surrogate: 1-Chlorooctadecane 116 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 5 ( 2-3' ) (H213442-15)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEX	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.2 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 123 % 44.3-133

Surrogate: 1-Chlorooctadecane 126 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 6 ( 0-1' ) (H213442-16)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.9 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 98.4 % 44.3-133

Surrogate: 1-Chlorooctadecane 102 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 6 ( 2-3' ) (H213442-17)**

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	12/02/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/02/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 127 % 44.3-133

Surrogate: 1-Chlorooctadecane 132 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 6 ( 3-4' ) (H213442-18)**

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	12/03/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/03/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/03/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/03/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/03/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.1 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 130 % 44.3-133

Surrogate: 1-Chlorooctadecane 133 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 7 ( 0-1' ) (H213442-19)**

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	12/03/2021	ND	2.00	100	2.00	9.38		
Toluene*	<0.050	0.050	12/03/2021	ND	2.08	104	2.00	13.3		
Ethylbenzene*	<0.050	0.050	12/03/2021	ND	2.06	103	2.00	14.1		
Total Xylenes*	<0.150	0.150	12/03/2021	ND	6.30	105	6.00	13.4		
Total BTEx	<0.300	0.300	12/03/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.3 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 98.2 % 44.3-133

Surrogate: 1-Chlorooctadecane 99.8 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager





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

**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 7 ( 2-3' ) (H213442-20)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/02/2021	ND	1.93	96.3	2.00	5.89		
Toluene*	<0.050	0.050	12/02/2021	ND	1.98	99.0	2.00	5.26		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	1.97	98.3	2.00	4.13		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	5.99	99.8	6.00	4.40		
Total BTEx	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 69.9-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 104 % 44.3-133

Surrogate: 1-Chlorooctadecane 106 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

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

Received:	12/01/2021	Sampling Date:	12/01/2021
Reported:	12/03/2021	Sampling Type:	Soil
Project Name:	WARREN UNIT #27 FLOW LINE RELEASE	Sampling Condition:	Cool & Intact
Project Number:	212C - MD - 02631	Sample Received By:	Tamara Oldaker
Project Location:	CONOCO PHILLIPS - LEA CO NM		

**Sample ID: AH - 7 ( 3-4' ) (H213442-21)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/02/2021	ND	1.93	96.3	2.00	5.89		
Toluene*	<0.050	0.050	12/02/2021	ND	1.98	99.0	2.00	5.26		
Ethylbenzene*	<0.050	0.050	12/02/2021	ND	1.97	98.3	2.00	4.13		
Total Xylenes*	<0.150	0.150	12/02/2021	ND	5.99	99.8	6.00	4.40		
Total BTEX	<0.300	0.300	12/02/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 69.9-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	12/02/2021	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	12/02/2021	ND	217	109	200	11.0	
DRO >C10-C28*	<10.0	10.0	12/02/2021	ND	221	110	200	2.19	
EXT DRO >C28-C36	<10.0	10.0	12/02/2021	ND					

Surrogate: 1-Chlorooctane 108 % 44.3-133

Surrogate: 1-Chlorooctadecane 109 % 38.9-142

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-04	The RPD for the BS/BSD was outside of historical limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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

---

Celey D. Keene, Lab Director/Quality Manager



**CARDINAL**  
Laboratories

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

### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

1/3

Page 24 of 26

(575) 393-2326 FAX (575) 393-2476

<b>Company Name:</b> Tetra Tech	
<b>Project Manager:</b> Christian Lull	
<b>Address:</b>	
<b>City:</b>	<b>State:</b> <b>Zip:</b>
<b>Phone #:</b> 512-865-0190	<b>Fax #:</b>
<b>Project #:</b> 212C-MD-02631	<b>Project Owner:</b> ConocoPhillips
<b>Project Name:</b> Warren Unit #27 Flowline Release	
<b>Project Location:</b> Lea County, NM	
<b>Sampler Name:</b> Cotton Bickersstaff	

BILL TO	
<b>P.O. #:</b>	
<b>Company:</b> Tetra tech	
<b>Attn:</b> Christian Lull	
<b>Address:</b>	
<b>City:</b>	
<b>State:</b>	<b>Zip:</b>
<b>Phone #:</b> 512-565-0190	
<b>Fax #:</b>	

ANALYSIS REQUEST											
BTEX 8021B	BTEX 8260B										
TPH 801SM											
Chloride 300.0											

FOR LAB USE ONLY		(GRAB OR C) COMP.	# CONTAINERS	MATRIX					PRESERV.		SAMPLING		
Lab I.D.	Sample I.D.			GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	DATE	TIME
H213442		G				X				X		12/1/21	
1	AH-1 (0'-1')					X				X			
2	AH-1 (1'-2')					X				X			
3	AH-1 (2'-3')					X				X			
4	AH-2 (0'-1')					X				X			
5	AH-2 (1'-2')					X				X			
6	AH-2 (2'-3')					X				X			
7	AH-3 (0'-1')					X				X			
8	AH-3 (1'-2')					X				X			
9	AH-3 (2'-3')					X				X			
10	AH-4 (0'-1')					X				X			

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

<b>Relinquished By:</b> Cotton Bickersstaff	<b>Date:</b> 12/1/21 <b>Time:</b> 1625	<b>Received By:</b> Janara Roldan
<b>Relinquished By:</b>	<b>Date:</b>	<b>Received By:</b>
<b>Delivered By: (Circle One)</b>	<b>Observed Temp. °C</b> 2.5	<b>Sample Condition</b> Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No
<b>Sampler - UPS - Bus - Other:</b>	<b>Corrected Temp. °C</b> 2.0	<b>CHECKED BY:</b> (Initials) T.O.

<b>Verbal Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Add'l Phone #:</b>
<b>All Results are emailed. Please provide Email address:</b> christianlull@tetratech.com	
<b>REMARKS:</b> Email Invoice to Christian Lull	
<b>Turnaround Time:</b> Standard <input checked="" type="checkbox"/> Rush <input type="checkbox"/>	<b>Bacteria (only) Sample Condition</b> Cool Intact Observed Temp. °C <input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No Corrected Temp. °C
<b>Thermometer ID #113</b> <b>Correction Factor -0.5°C</b>	

† Cardinal cannot accept verbal changes. Please email changes to [celey.keene@cardinallabsnm.com](mailto:celey.keene@cardinallabsnm.com)

Released to Imaging: 1/4/2022 1:16:24 PM





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(575) 393-2326 FAX (575) 393-2476

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2/3

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# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

3/3

Page 26 of 26

Company Name: <u>Tetra Tech</u>				BILL TO				ANALYSIS REQUEST											
Project Manager: <u>Christian Lull</u>				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">BTX 80213 BTX 72603</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH 8015M</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Chloride 3000</div> </div>											
Address:				Company: <u>Tetra Tech</u>															
City: State: Zip:				Attn: <u>Christian Lull</u>															
Phone #: <u>512-565-0190</u> Fax #:				Address:															
Project #: <u>2126-MD-02631</u> Project Owner: <u>Caroco Phillips</u>				City:															
Project Name: <u>Warren Unit #27 Flowline Release</u>				State: Zip:															
Project Location: <u>Lea County, NM</u>				Phone #: <u>512-565-0190</u>															
Sampler Name: <u>Colton Bickerstaff</u>				Fax #:															
FOR LAB USE ONLY		Lab I.D.		Sample I.D.		G/RAB OR (C)OMP.		# CONTAINERS		MATRIX				PRESERV.		SAMPLING			
										GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:				ACID/BASE: ICE / COOL OTHER:		DATE		TIME	
<u>H213442</u>		<u>21</u>		<u>AM-7 (3'-4")</u>		<u>G</u>		<u>1</u>		<u>X</u>				<u>X</u>		<u>12/1/21</u>			

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <u>Colton Bickerstaff</u>		Date: <u>12/1/21</u>	Received By: <u>Jamara Eldridge</u>		Verbal Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:	
Relinquished By:		Time: <u>1625</u>	Received By:		All Results are emailed. Please provide Email address:	
Delivered By: (Circle One)		Observed Temp. °C <u>2.5</u>	Sample Condition		REMARKS: <u>Email invoice to Christian Lull</u>	
Sampler - UPS - Bus - Other:		Corrected Temp. °C <u>2.0</u>	Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Turnaround Time: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush	
			CHECKED BY: (Initials) <u>T.O.</u>		Thermometer ID #113 Correction Factor -0.5°C	
					Bacteria (only) Sample Condition Cool Intact Observed Temp. °C	
					<input type="checkbox"/> Yes <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No Corrected Temp. °C	

FORM-006 R 3.2 10/07/21

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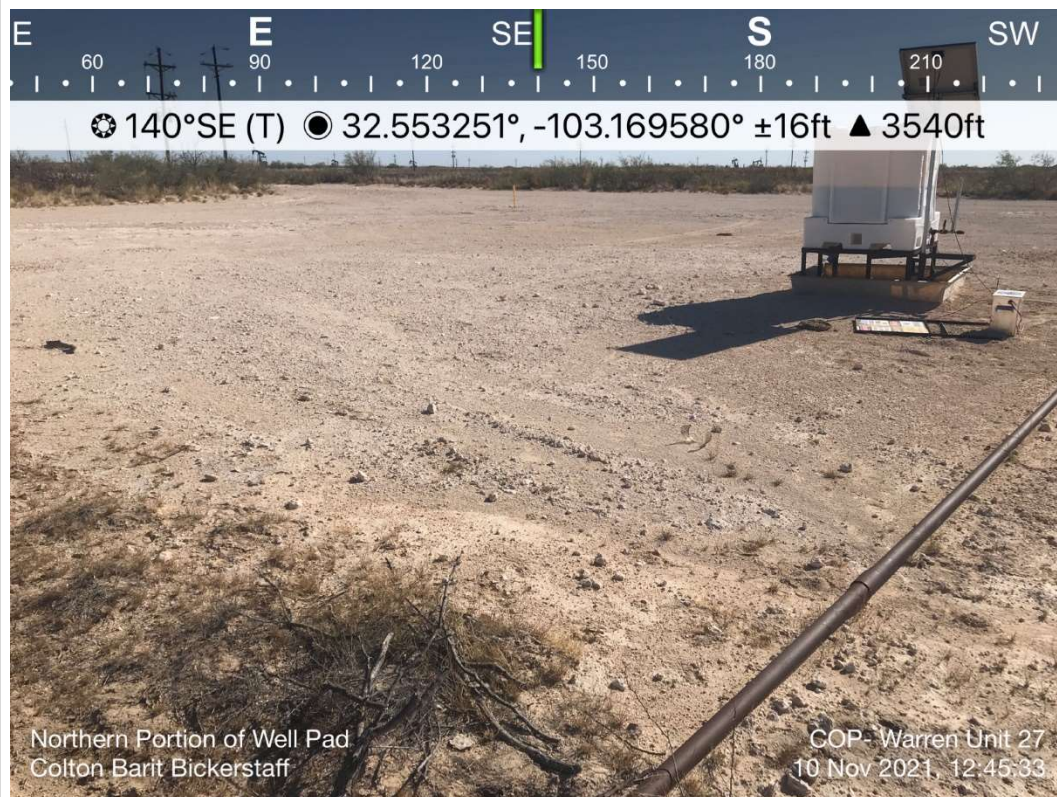
## **APPENDIX D**

# **Photographic Documentation**



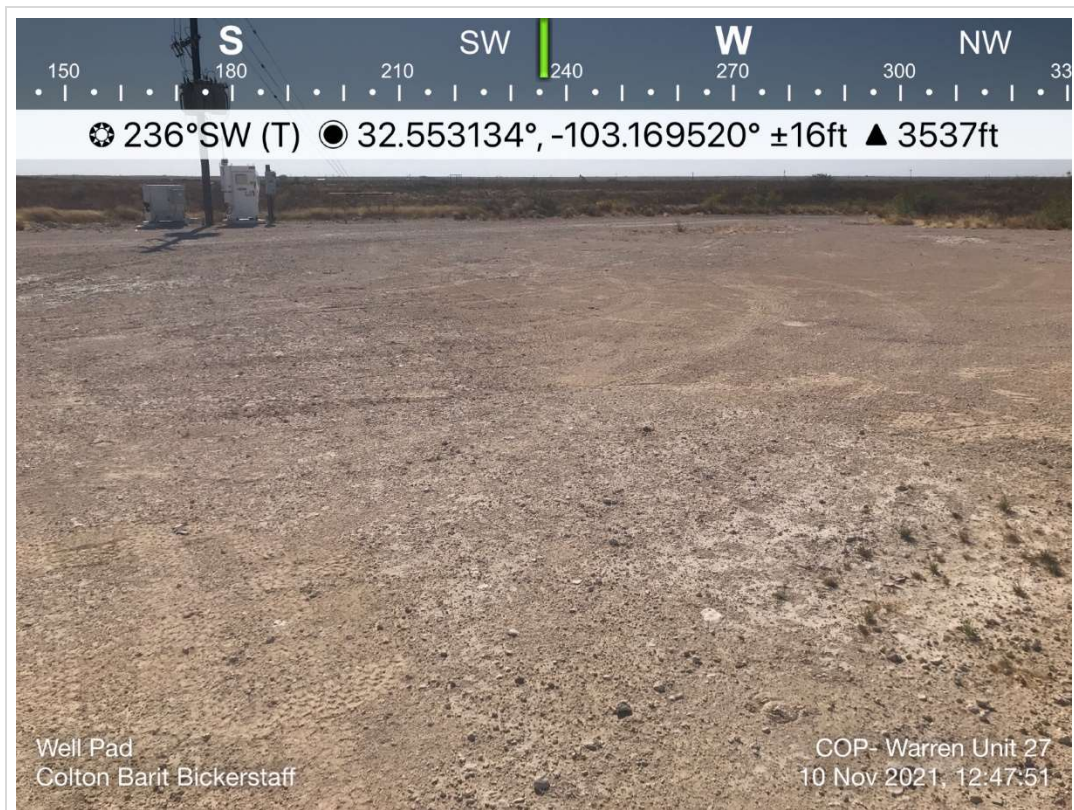


TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View northeast, showing signage at the COP site.	1
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View southeast. East side of release extent	2
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



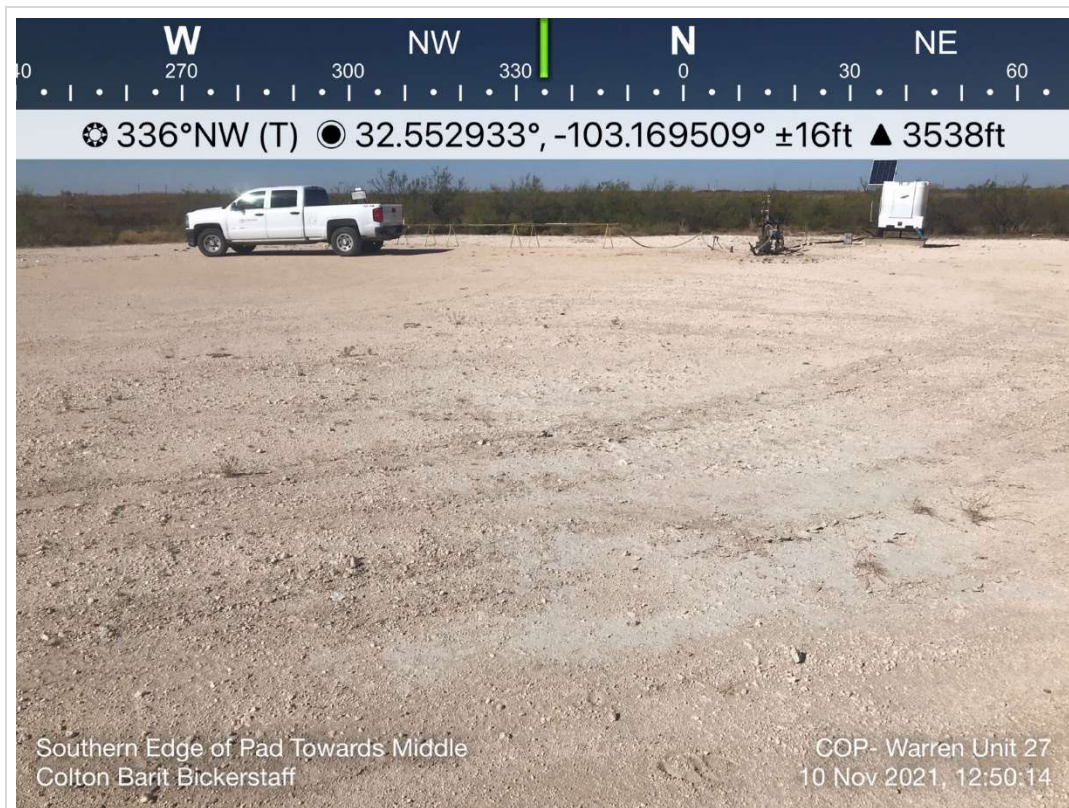


TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View southwest. West side of release extent.	3
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View west-southwest. West side of release extent.	4
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



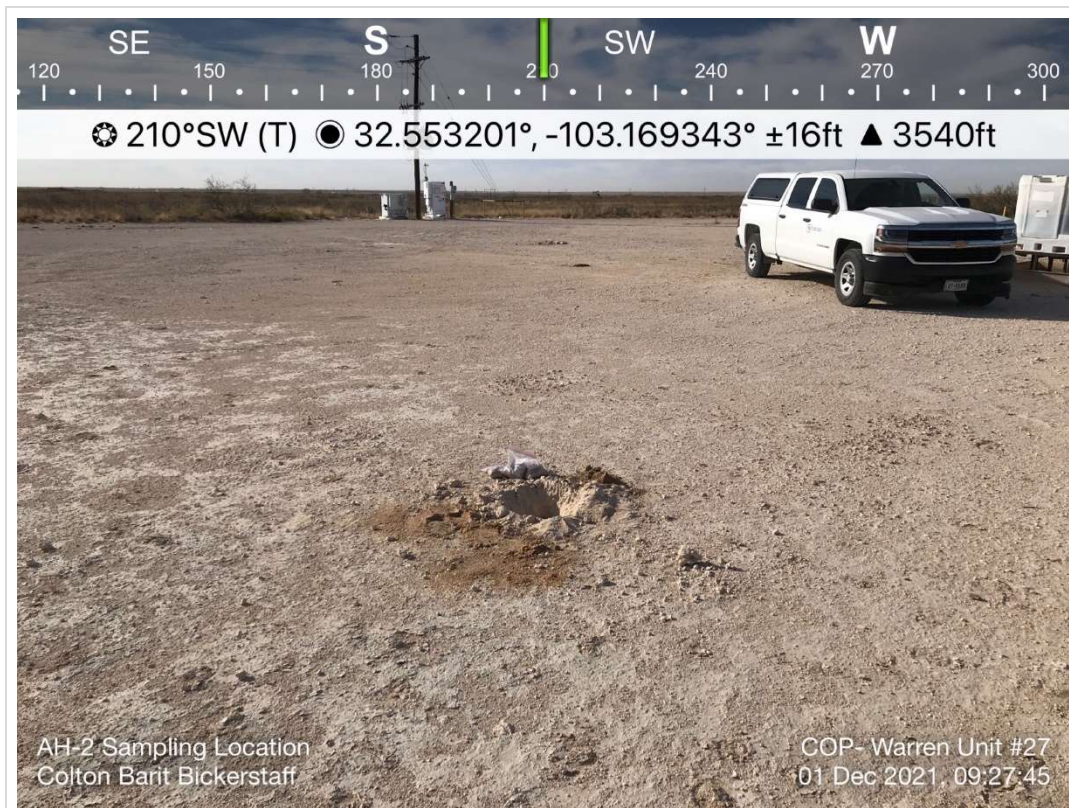


TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View north-northwest. Center of release extent.	5
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021

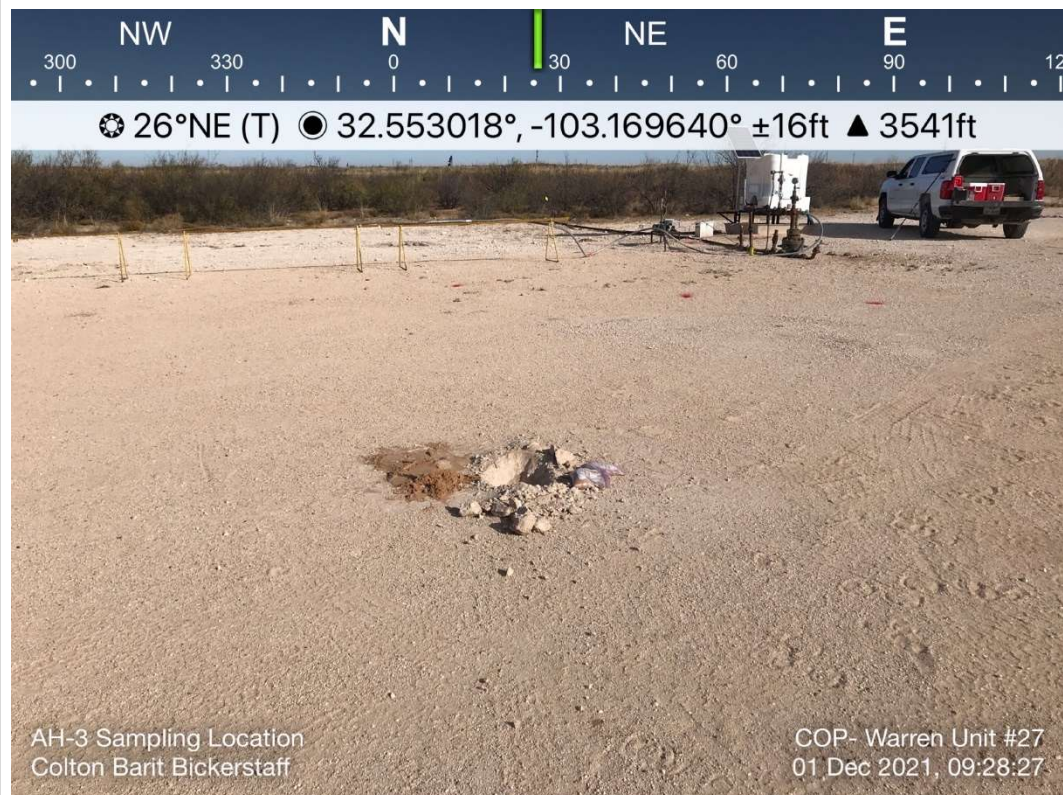


TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View south southeast. Boring location AH-1.	6
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021





TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View south southwest. Boring location AH-2.	7
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View north northeast. Boring location AH-3.	8
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



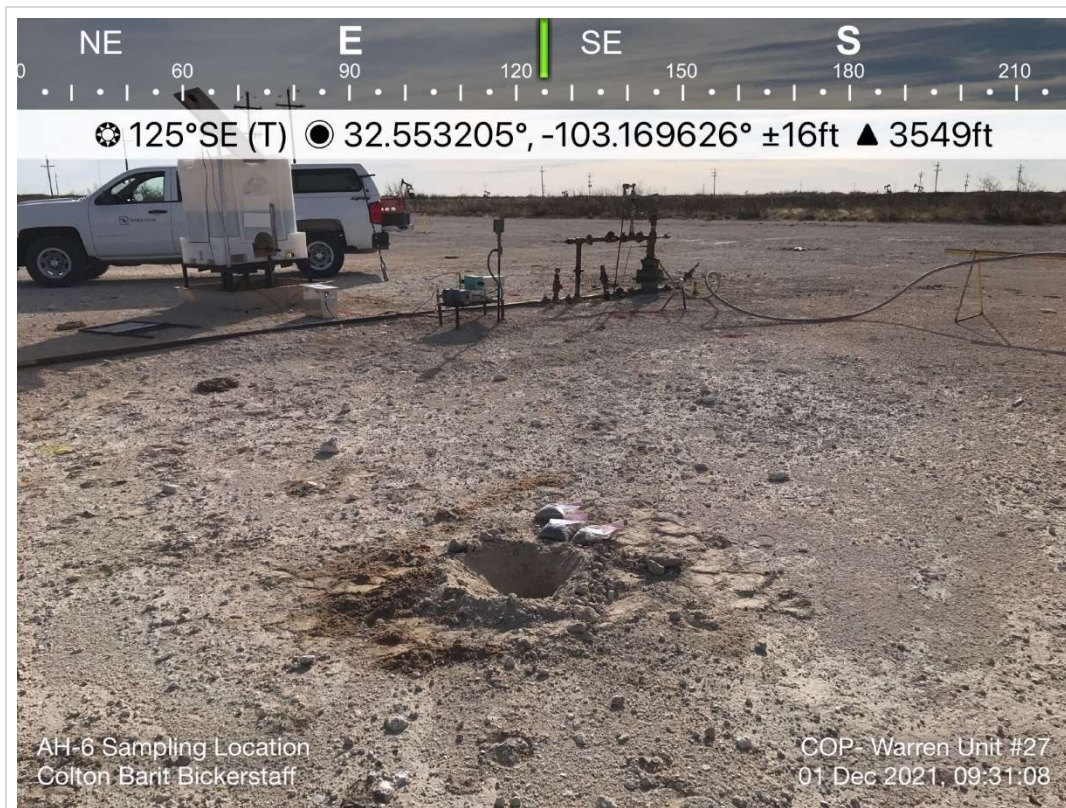


TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View northwest. Boring location AH-4.	9
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View north northeast. Boring location AH-5.	10
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021





TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View southeast. Boring location AH-6.	11
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02631	DESCRIPTION	View north northwest. Boring location AH-7.	12
	SITE NAME	ConocoPhillips Warren Unit #27 Flowline Release	12/1/2021



**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  
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**District III**

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

**District IV**

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

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

CONDITIONS

Action 70065

**CONDITIONS**

Operator: CONOCOPHILLIPS COMPANY 600 W. Illinois Avenue Midland, TX 79701	OGRID: 217817
	Action Number: 70065
	Action Type: [C-141] Release Corrective Action (C-141)

**CONDITIONS**

Created By	Condition	Condition Date
nvelez	1. OCD approves deferment of soil remediation and surface reclamation until gas well is plugged and abandoned. 2. Based on lab data and position of AH-3, OCD does not deem the release to be fully delineated and will require its lateral extent to be investigated surrounding AH-3 at time of site closure.	1/4/2022