

\*\*\*\*\* LIQUID SPILLS - VOLUME CALCULATIONS \*\*\*\*\*

Location of spill:

SECTION 27 SWD TRANFER LINE

(32.776191, -103.497162)

Date of Spill:

4/13/2023

Site Soil Type:

KU — Kimbrough-Lea complex

Estimated Daily Production Loss:

5

BBL Oil

5

BBL Water

Total Area Calculations

Total Surface Area	width		length		wet soil depth	oil (%)
Rectangle Area #1	32.0 ft	X	34.0 ft	X	0.5 in	50%
Rectangle Area #2	ft	X	ft	X	in	0%
Rectangle Area #3	ft	X	ft	X	in	0%
Rectangle Area #4	ft	X	ft	X	in	0%
Rectangle Area #5	ft	X	ft	X	in	0%
Rectangle Area #6	ft	X	ft	X	in	0%
Rectangle Area #7	ft	X	ft	X	in	0%
Rectangle Area #8	ft	X	ft	X	in	0%

Porosity 0.250 gal per gal

Saturated Soil Volume Calculations:

		H2O	OIL
Area #1	1,088 sq. ft.	23 cu. ft.	23 cu. ft.
Area #2	0 sq. ft.	cu. ft.	cu. ft.
Area #3	0 sq. ft.	cu. ft.	cu. ft.
Area #4	0 sq. ft.	cu. ft.	cu. ft.
Area #5	0 sq. ft.	cu. ft.	cu. ft.
Area #6	0 sq. ft.	cu. ft.	cu. ft.
Area #7	0 sq. ft.	cu. ft.	cu. ft.
Area #8	0 sq. ft.	cu. ft.	cu. ft.
Total Solid/Liquid Volume:	1,088 sq. ft.	23 cu. ft.	23 cu. ft.

Estimated Volumes Spilled

	H2O	OIL
Liquid in Soil:	1.0 BBL	1.0 BBL
Liquid Recovered :	4.0 BBL	4.0 BBL
Spill Liquid	5.0 BBL	5.0 BBL
Total Spill Liquid:	10.0	

Recovered Volumes

Estimated oil recovered: 4.0 BBL  
Estimated water recovered: 4.0 BBL

Soil Type	Porosity
Clay	0.15
Peat	0.40
Glacial Sediments	0.13
Sandy Clay	0.12
Silt	0.16
Loess	0.25
Fine Sand	0.16
Medium Sand	0.25
Coarse Sand	0.26
Gravely Sand	0.26
Fine Gravel	0.26
Medium Gravel	0.25
Coarse Gravel	0.18
Sandstone	0.25
Siltstone	0.18
Shale	0.05
Limestone	0.13
Basalt	0.19
Volcanic Tuff	0.20
Standing Liquids	



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	NAPP2310731906
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	CROSS TIMBERS ENERGY, LLC	OGRID	298299
Contact Name	SAMANNTHA AVARELLO	Contact Telephone	817-334-7747
Contact email	SAVARELLO@TXOENERGY.COM	Incident # (assigned by OCD)	NAPP2310731906
Contact mailing address	400 W 7TH STREET, FORT WORTH, TX 761009		

Location of Release Source

Latitude 32.776191 Longitude -103.497162  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	SECTION 27 SWD TRANSFER LINE	Site Type	BTY
Date Release Discovered	04/13/2023	API# (if applicable)	

Unit Letter	Section	Township	Range	County
K	6	18S	35E	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 checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 5	Volume Recovered (bbls) 4
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 5	Volume Recovered (bbls) 4
	Is the concentration of dissolved chloride 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

EQUIPMENT FAILURE



State of New Mexico  
Oil Conservation Division

Incident ID	NAPP2310731906
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?  SPILLED AMOUNT <25 BBLS
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?  NOR SUBMITTED	

**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: SAMANTHA AVARELLO	Title: EHS COORDINATOR
Signature: <u>Samantha Avarello</u>	Date: 04/17/2023
email: SAVARELLO@TXOENERGY.COM	Telephone: 817-334-7747
<b><u>OCD Only</u></b>	
Received by: Jocelyn Harimon	Date: 04/17/2023



Incident ID	NAPP2310731906
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?	<u>105</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input checked="" 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.

<p><b>Characterization Report Checklist:</b> <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.</li><li><input type="checkbox"/> Field data</li><li><input checked="" type="checkbox"/> Data table of soil contaminant concentration data</li><li><input checked="" type="checkbox"/> Depth to water determination</li><li><input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li><li><input checked="" type="checkbox"/> Boring or excavation logs</li><li><input checked="" type="checkbox"/> Photographs including date and GIS information</li><li><input checked="" type="checkbox"/> Topographic/Aerial maps</li><li><input checked="" type="checkbox"/> Laboratory data including chain of custody</li></ul>
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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.



# Trinity Oilfield Services & Rentals, LLC



August 20<sup>th</sup>, 2024

Oil Conservation Division, District I  
1625 N. French Drive  
Hobbs, NM 88240

Re: **Remediation Closure Request**  
**Section 27 SWD Transfer Line**  
**Tracking #: NAPP2310731906**

Trinity Oilfield Services (Trinity), on behalf of Cross Timbers Energy, LLC, hereby submits the following Remediation Closure Request in response to a release that occurred at the above-referenced location, and further described below.

Site Information	
Incident ID	NAPP2310731906
Site Name	Section 27 SWD Transfer Line
Lease ID	B011130002
Company	Cross Timbers Energy, LLC
Contact Name	Samanntha Avarello
Contact Email	SAVARELLO@TXOPARTNERS.COM
Contact Telephone	817-334-7747
County	Lea
ULSTR	K-06-18S-35E
GPS Coordinates (NAD 83)	32.776191, -103.497162
Landowner	State

## RELEASE BACKGROUND

On 04/17/2023, Cross Timbers Energy, LLC reported a release at the Section 27 SWD Transfer Line. The release was caused by equipment failure. Approximately 1,084 sqft. of the Pasture was found to be damp upon initial inspection.

Release Information	
Date of Release	04/13/2023
Type of Release	Crude Oil and Produced Water
Source of Release	Equipment Failure
Volume Released – Produced Water	5 bbls
Volume Recovered – Produced Water	4 bbls
Volume Released – Crude Oil	5 bbls
Volume Recovered – Crude Oil	4 bbls
Affected Area – Damp Soil	Pasture - Approximately 1,084 sqft.
Site Location Map	Attached

## Cultural Properties Protection:

An ARMS inspection and survey was not requested at the time as this requirement was unknown. After thorough communication with the SLO, we understand the process of requesting such surveys and are committed to adhering to the rules and request an ARMS survey where applicable moving forward.



**SITE CHARACTERIZATION AND CLOSURE CRITERIA****Depth to Groundwater/Wellhead Protection:**

Data Source	Well Number	Data Date	Depth (ft.)
NM OSE	NA	NA	NA
USGS	NA	NA	NA
Soil Bore	DTW-7	02/08/2023	105'

A search of the groundwater well databases maintained by the New Mexico Office of the State Engineer (NMOSE) and the United States Geological Survey (USGS) was conducted to determine if any registered groundwater wells are located within a 1/2 mile of the release site. The search revealed that wells occurred in the databases that meet the NMOCDC criteria for the age of data, the distance of the data point well from the release point, and a data point well having a diagram of construction.

On 02/08/2023, Kane Environmental Engineering along with Scarborough Drilling was onsite to drill a groundwater determination borehole (DTW-7) to 105' below ground surface within a 1/2 mile radius of the incident location. The borehole was left open for 96 hours and checked for the presence of groundwater. As a result, no water was detected at 105" below surface at the borehole location (32.77567, -103.49953). The driller log is attached for reference.

**General Site Characterization:**

Site Assessment	
Karst Potential	Low
Distance to Watercourse	> 1,000 ft.
Within 100 yr Floodplain	No
Pasture Impact	Yes

A risk-based site assessment/characterization was performed following the New Mexico Oil Conservation Division (NMOCDC) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). To summarize the site assessment/characterization evaluation, the affected area has Low potential for cave and karst, and no other receptors (residence, school, hospital, institution, church, mining, municipal, or other ordinance boundaries) were located within the regulatorily promulgated distances from the site.

Soil Assessment	
Soil Series	Kimbrough-Lea
Fragile Soil Interpretive Class	Fragile
Erodibility Value	0.32
Wind Erodibility Group	5
Badland Soils	No
Gypsum Soils	No
Representative Slope	1%
Depth to Restrictive Feature	25 cm
Depth to Bedrock	> 200 cm
Severe Wildland Burn	No

A soil assessment/characterization was performed following the New Mexico State Land Office Environmental Compliance Office (ECO) Spill and Release Reporting Guidelines (Part 2 Letter D). To summarize, the affected area is classified as a sensitive soil.



**Closure Criteria:**

<b>On-Site &amp; Off-Site 4ft bgs   Recommended Remedial Action Levels (RRALs)</b>	
Chlorides	20,000 mg/kg
TPH (GRO and DRO and MRO)	2,500 mg/kg
TPH (GRO and DRO)	1,000 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

A reclamation standard of 600 mg/kg chloride and 100 mg/kg TPH was applied to the top four feet of the pasture area if impacted by the release, per NMAC 19.15.29.13.D (1) for the top four feet of areas that will be reclaimed following remediation.

**INITIAL ASSESSMENT AND REMEDIATION ACTIVITIES****Initial Sample Activities:**

<b>Delineation Summary</b>	
Delineation Dates	05/05/2023 & 10/12/2023
Depths Sampled	0' - 8'
Delineation Map	Attached
Laboratory Results	Table 1

All soil samples were placed into laboratory-supplied glassware, labeled, and maintained on ice until delivery to an NMOCD-approved laboratory (Cardinal Laboratories of Hobbs, NM) for the analysis of chloride using Method SM4500 Cl-B, Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8021 B and Total Petroleum Hydrocarbon (TPH) constituents the by EPA 8015M.

**Confirmation Activities:**

<b>Remediation Summary</b>	
Remediation Dates	09/21/2023 & 10/12/2023
Workplan Approval	At Risk
Liner Variance Request	None
Deferral Request	None
Depths Excavated	1.5' - 8'
Area Represented by the required 5-point Confirmation Samples – Floors and Walls	200 sqft.
Total Volume of Excavated Soil	260 yards
Remediation Map	Attached
Laboratory Results	Table 2

Impacted soil within the release margins was excavated and temporarily stockpiled on-site on a 6-mil plastic sheeting, pending final disposition. Unless a Variance Request has been approved, all Floor and On-Site Walls of the excavated area were advanced until laboratory analytical results from confirmation soil samples indicate Chloride, Benzene, BTEX, and TPH concentrations are below the RRAL NMOCD Closure Criteria listed in the Table above, and all Off-Site Walls were advanced to meet reclamation standards. Confirmation soil samples (five-point composites representing no more than 200 sqft. of the excavated area) were collected from the floor and sidewalls.

Upon receiving laboratory analytical data showing that confirmation soil samples from the excavated areas yield results below the selected NMOCD Table 1 Closure Criteria; the impacted soil was transported under manifest to an NMOCD-approved disposal facility and the excavated area was backfilled with locally sourced, non-impacted "like" material.



**REQUEST FOR CONFIRMATION SAMPLE NOTIFICATION VARIANCE**

Trinity, on behalf of Cross Timbers Energy, LLC, kindly requests a variance per the requirements of 19.15.29.12 D.(1)(a). A proper two-day notice was not dispatched at the designated time. Laboratory data is within closure criteria limits and the current condition of the release area does not cause an imminent risk to human health, the environment, or groundwater. Correspondence with Mike Bratcher detailing the addressed variance request and commitment to compliance is attached for reference.

**SITE RECLAMATION AND RESTORATION**

Areas affected by the release and the associated remediation activities will be restored to a condition that existed before the release to the extent practicable. The affected area was contoured and/or compacted to provide erosion control, stability, and preservation of surface water flow.

Affected areas disturbed by remediation on native land, not on production pads and/or lease roads, will be reseeded with a prescribed NMSLO seed mixture, as defined in SLO Seed Mix Version 1-200808 for Coarse (CS) Sites, during the first favorable growing season following the closure of the site. The area will be fenced off to mitigate grazing and soil compaction by cattle. Reclamation on State Trust Land will also be documented and monitored for successful vegetation growth and invasive/noxious weed populations.

**REQUEST FOR REMEDIATION CLOSURE APPROVAL**

Supporting Documentation	
C-141	Attached
Delineation and Remediation Maps	Attached
Depth to Groundwater Maps and Source	Attached
US NWI Map	Attached
FEMA Flood Hazard Map	Attached
USDA Soil Survey	Attached
SLO Seed Mix	Attached
Site Photography	Attached
Laboratory Analytics with COCs	Attached

The site has been remediated to meet the standards of Table I of 19.15.29.12 NMAC; therefore, Trinity Oilfield Services respectfully requests that the New Mexico Oil Conservation Division grant remediation closure approval for the referenced release.

Sincerely,



Dan Dunkelberg  
Project Manager



Cynthia Jordan  
Project Scientist



**TABLE 1**  
**CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL**

**CROSS TIMBERS ENERGY, LLC**  
**SECTION 27 SWD TRANSFER LINE**  
**LEA COUNTY, NEW MEXICO**  
**NMOCD REFERENCE #: NAPP2310731906**



SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	VERTICAL/ HORIZONTAL	OFF-SITE/ ON-SITE	SAMPLE TYPE	SOIL STATUS	CHLORIDE (mg/Kg)	TPH C6-C36 (mg/Kg)	GRO+ DRO (mg/kg)	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)	MRO C28-C36 (mg/Kg)	TOTAL BTEX (mg/Kg)	BENZENE (mg/Kg)
<b>On-Site, &amp; Deeper than 4' Pasture</b>							<b>20000</b>	<b>2500</b>	<b>1000</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>10</b>
<b>Delineation Special Circumstance, NMOCD Delineation Limits Pasture to 4'</b>							<b>600</b>	<b>100</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>10</b>
<b>Vertical Delineation</b>														
DV-001.0-00.0-P	0	5/5/2023	Vertical	Off-Site	Grab	In-Situ	16.00	67,040.00	57,370.00	5,970.00	51,400.00	9,670.00	628.00	31.90
DV-001.0-01.0-P	1	5/5/2023	Vertical	Off-Site	Grab	In-Situ	32.00	31,780.00	27,760.00	4,460.00	23,300.00	4,020.00	436.00	9.43
DV-001.0-02.0-P	2	5/5/2023	Vertical	Off-Site	Grab	In-Situ	80.00	2,802.90	2,120.90	60.90	2,060.00	682.00	3.18	<10.0
DV-001.0-08.0-P	8	10/12/2023	Vertical	Off-Site	Grab	In-Situ	<16.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
<b>Horizontal Delineation</b>														
DH-001.0-01.0-P	1	5/5/2023	Horizontal	Off-Site	Grab	In-Situ	32.00	10.50	<10.0	<10.0	<10.0	10.50	<10.0	<10.0
DH-002.0-01.0-P	1	5/5/2023	Horizontal	Off-Site	Grab	In-Situ	48.00	35.80	35.80	<10.0	35.80	<10.0	<10.0	<10.0
DH-003.0-01.0-P	1	5/5/2023	Horizontal	Off-Site	Grab	In-Situ	64.00	13.30	13.30	<10.0	13.30	<10.0	<10.0	<10.0
DH-004.0-01.0-P	1	5/5/2023	Horizontal	Off-Site	Grab	In-Situ	16.00	121.40	102.00	<10.0	102.00	19.40	<10.0	<10.0
DH-004.1-01.0-P	1	10/12/2023	Horizontal	Off-Site	Grab	In-Situ	400.00	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0



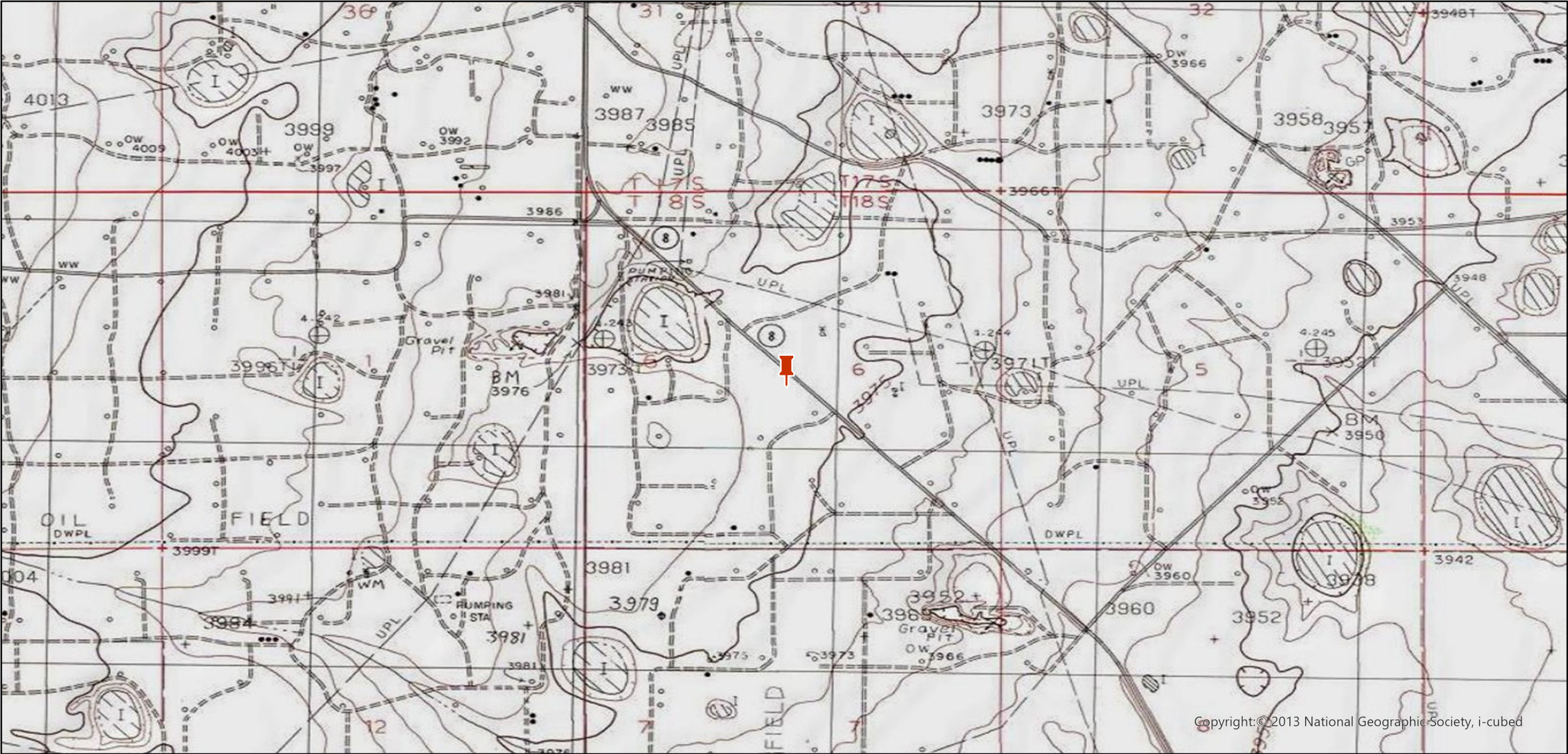
**TABLE 2**  
**CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL**

**CROSS TIMBERS ENERGY, LLC**  
**SECTION 27 SWD TRANSFER LINE**  
**LEA COUNTY, NEW MEXICO**  
**NMOCD REFERENCE #: NAPP2310731906**



SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	FLOOR/WALL	OFF-SITE/ON-SITE	SAMPLE TYPE	SOIL STATUS	CHLORIDE (mg/Kg)	TPH C6-C36 (mg/Kg)	GRO+ DRO (mg/kg)	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)	MRO C28-C36 (mg/Kg)	TOTAL BTEX (mg/Kg)	BENZENE (mg/Kg)
<b>NMOCD Closure Limits Pad</b>							<b>20000</b>	<b>2500</b>	<b>1000</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>10</b>
<b>NMOCD Closure Limits Pasture to 4'</b>							<b>600</b>	<b>100</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>50</b>	<b>10</b>
<b>Remediation Floors</b>														
CF-001.0-01.5-P	1.5	9/21/2023	Floor	Off-Site	Composite	In-Situ	48.00	89.70	69.40	<10.0	69.40	20.30	<.300	<0.50
CF-002.0-01.5-P	1.5	9/21/2023	Floor	Off-Site	Composite	In-Situ	64.00	15.10	15.10	<10.0	15.10	<10.0	<.300	<0.50
CF-003.0-05.0-P	5	9/21/2023	Floor	Off-Site	Composite	Excavated	384.00	2,353.00	1,850.00	<10.0	1,850.00	503.00	<.300	<0.50
CF-003.0-06.0-P	6	10/12/2023	Floor	Off-Site	Composite	In-Situ	<16.0	<10.0	<10.0	<10.0	<10.0	<10.0	<.300	<0.50
CF-004.0-08.0-P	8	9/21/2023	Floor	Off-Site	Composite	In-Situ	32.00	44.00	14.30	<10.0	14.30	29.70	<.300	<0.50
CF-005.0-08.0-P	8	9/21/2023	Floor	Off-Site	Composite	In-Situ	64.00	11.20	11.20	<10.0	11.20	<10.0	<.300	<0.50
CF-006.0-08.0-P	8	9/21/2023	Floor	Off-Site	Composite	In-Situ	32.00	<10.0	<10.0	<10.0	<10.0	<10.0	<.300	<0.50
<b>Remediation Walls</b>														
CW-001.0-04.0-P	4	9/21/2023	Wall	Off-Site	Composite	In-Situ	48.00	<10.0	<10.0	<10.0	<10.0	<10.0	<.300	<0.50
CW-002.0-01.0-P	1	9/21/2023	Wall	Off-Site	Composite	In-Situ	32.00	<10.0	<10.0	<10.0	<10.0	<10.0	<.300	<0.50



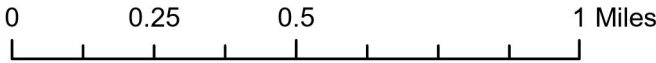


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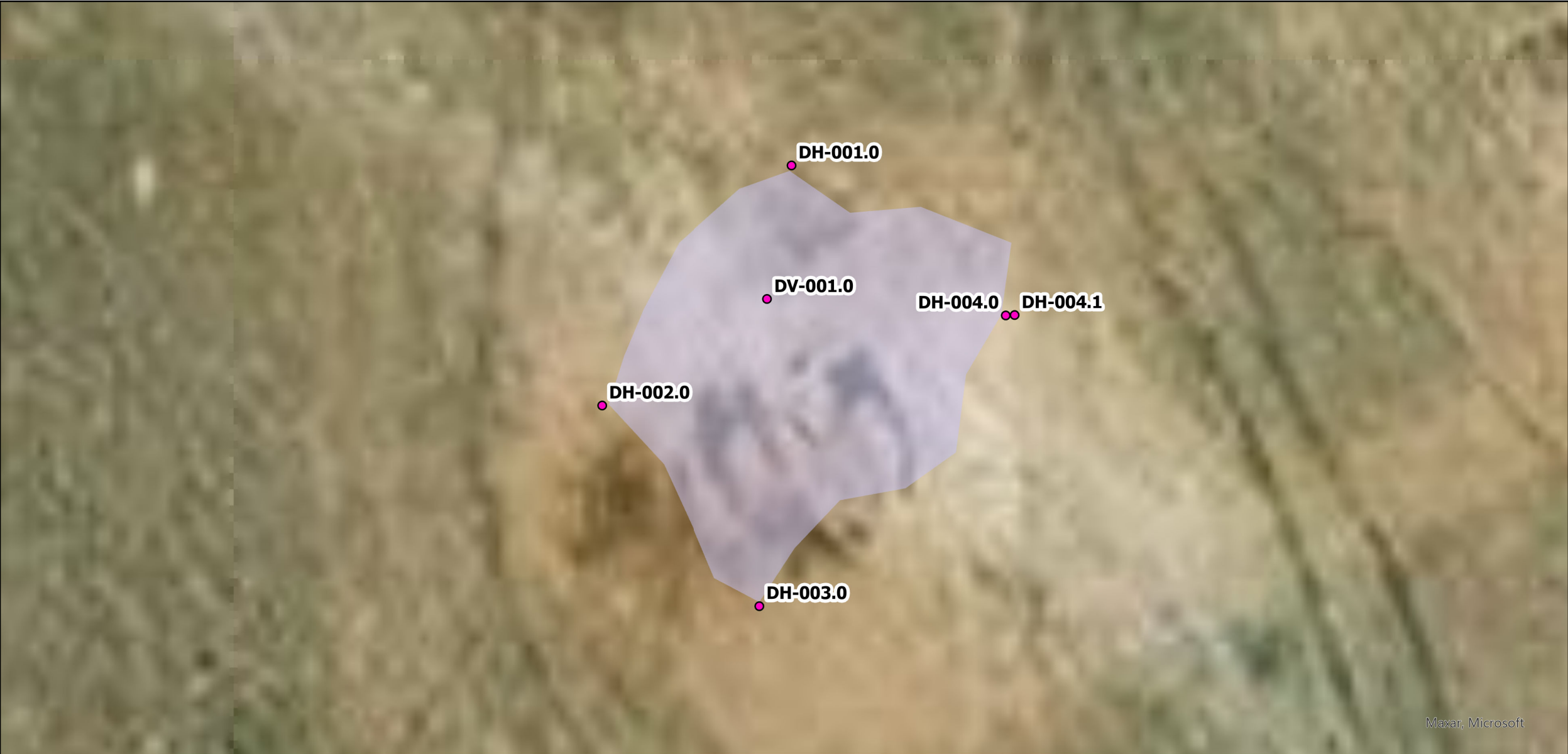


Site Location

**Site Location Map**  
**Cross Timbers Energy, LLC**  
**Section 27 SWD Transfer Line**  
**32.776191, -103.497162**  
**Lea County, New Mexico**  
**NMOCD Reference # NAPP2310731906**





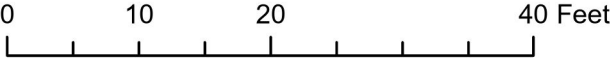


Maxar, Microsoft

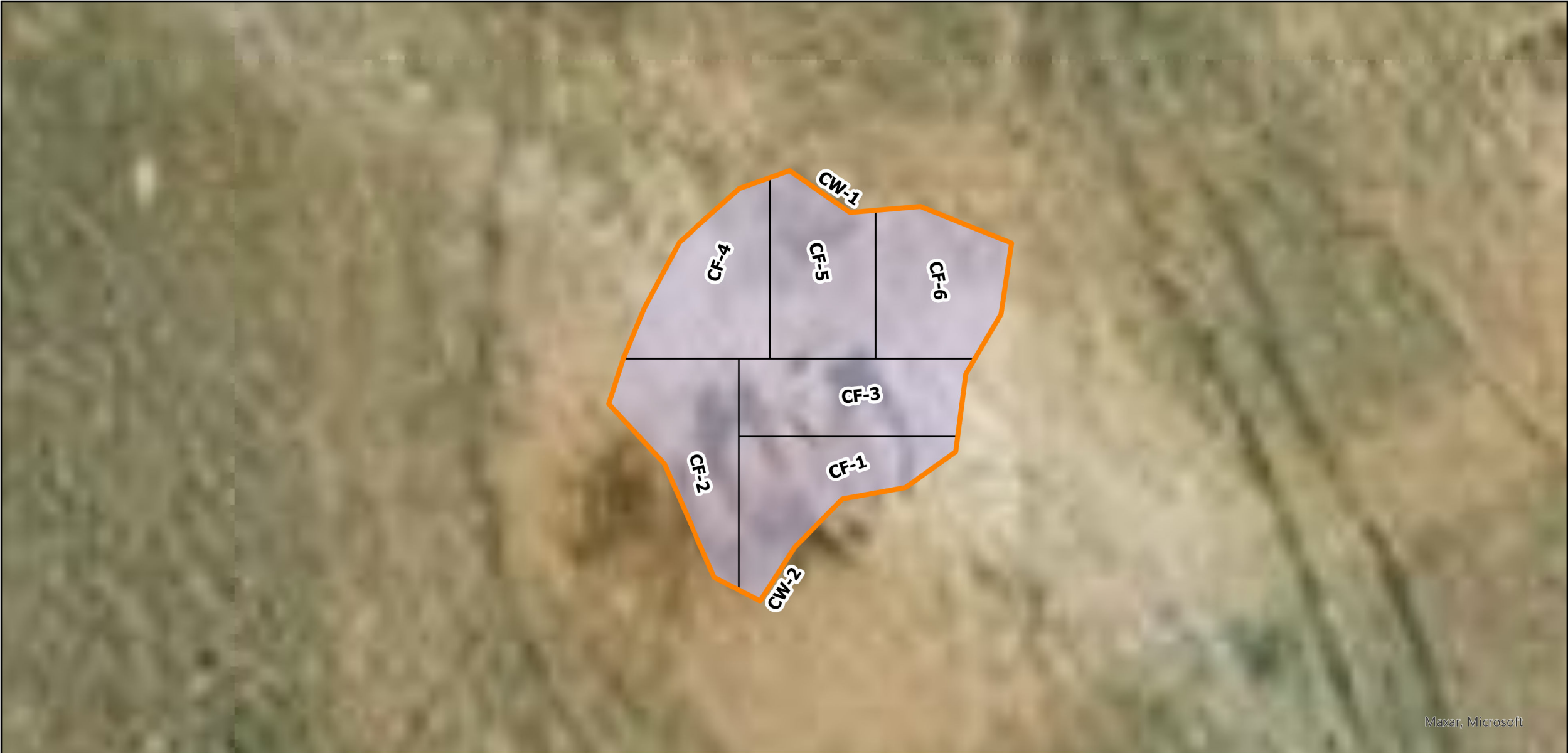
**Legend:**

- Sample Point
- Release Area

**Delineation Map**  
**Cross Timbers Energy, LLC**  
**Section 27 SW Transfer Line**  
**32.776191, -103.497162**  
**Lea County, New Mexico**  
**NMOCD Reference # NAPP2310731906**








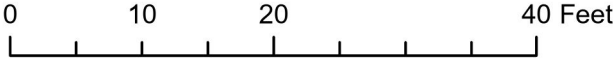


Maxar, Microsoft

**Legend:**

-  Remediation Wall
-  Remediation Floor
-  Excavation Area

**Remediation Map**  
**Cross Timbers Energy, LLC**  
**Section 27 SWD Transfer Line**  
**32.776191, -103.497162**  
**Lea County, New Mexico**  
**NMOCD Reference # NAPP2310731906**







## Initial Release

Pasture:

### North Elevation

☼ 160°S (T) ● 32°46'34"N, 103°29'50"W ±16ft ▲ 3992ft



Pasture:

### South East Elevation

☼ 299°NW (T) ● 32°46'34"N, 103°29'49"W ±16ft ▲ 3985ft







## Excavation

Pasture:



Pasture:







## Excavation

Pasture:



Pasture:







## Backfill

Pasture:



Pasture:







## Backfill

Pasture:



Pasture:





From: Dan Dunkelberg  
To: Bratcher, Michael, EMNRD  
Cc: Wells, Shelly, EMNRD; Josh Halcomb; Cynthia Jordan  
Subject: RE: [EXTERNAL] Request for Final Variance and Commitment to Compliance Going Forward  
Date: Friday, March 15, 2024 3:40:00 PM

Yes Sir,  
Please see list below of all projects that have been completed:

Rejected	Submitted	Pending Submission
NOY1800840250 PROXIMITY 30 FEDERAL #003	NAPP2225849972 DR PI FEDERAL UNIT 17 8 DA #031H	NAPP2300549844 NVA 215
NAPP2310731906 SECTION 27 SWD TRANFER LINE	NVV2003456745 LOST TANK 33 FEDERAL #012	NDHR1917955649 NORTH VACUUM ABO UNIT 298
NAPP2235337608 SEMU 106 (will resubmit with soil bore)	NRM2000246798 CYPRESS 33 1 WELL BATTERY	NAPP2328254347 SOUTHEAST MALJAMAR GB/SA UNIT #105
	NAPP2208136392 PURE GOLD MDP1 29-17 FEDERAL COM #175H	NAPP2322333827 SEMGSAU 108
	NAB1928438660 PLATINUM MDP1 34 3 FEDERAL COM #175H	NAPP2234043341 CEDAR CANYON 28 4 CTB
	NAB1924833062 NEFF FEDERAL #002 FLOWLINE	NAPP2323446753 CEDAR CANYON 28 4 CTB
	NAPP2235631785 AMAX 24-8 BATTERY	NAPP2213835736 ROARING SPRINGS 13 FEDERAL #004
	NAB1732444101 FEDERAL 12 #014H	NAPP2134051416 RED TANK 27-28 OG
	NRM2023058280 VACUUM GLORIETTA WEST UNIT #27	NCE2002448579 STERLING SILVER 3 FEDERAL 6 CTB
	NAPP2219253256 VGWU PRODUCTION AND INJECTION SYSTEM BATTERY	NAPP2136350118 FEDERAL 26-1 H BATTERY
	NAPP2329041721 VACUUM GLORIETTA WEST UNIT BATTERY	NAPP2204047138 FRAC WATER PIT - TACO CAT 27-34 FED COM 24,25 & 26
		NRM1924248710 WBR FEDERAL 0001
		NRM1924158933 WBR FEDERAL 0005
		NAB1917133761 CEDAR CANYON 16 STATE #010H

We are committed to maintaining compliance with all ongoing projects as well as those initiated in the future. Thank you for your time and consideration.  
Sincerely,  
Dan Dunkelberg  
Environmental Regulatory Manager



Trinity Oilfield Services & Rentals, LLC  
Cell: (575) 602-2403

From: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>  
Sent: Tuesday, March 12, 2024 7:56 AM  
To: Dan Dunkelberg <dan@trinityoilfieldservices.com>  
Cc: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>; Josh Halcomb <josh@trinityoilfieldservices.com>; Cynthia Jordan <cynthia@trinityoilfieldservices.com>  
Subject: RE: [EXTERNAL] Request for Final Variance and Commitment to Compliance Going Forward

Dan,  
We will need a list of the incidents you are requesting a variance for.  
Thanks,

Mike Bratcher • Incident Supervisor  
Environmental Bureau  
EMNRD - Oil Conservation Division  
506 W. Texas Ave | Artesia, NM 88210  
(575) 626-0857 | [mike.bratcher@emnrd.nm.gov](mailto:mike.bratcher@emnrd.nm.gov)  
<http://www.emnrd.nm.gov/ocd>



From: Dan Dunkelberg <dan@trinityoilfieldservices.com>  
Sent: Friday, March 8, 2024 3:46 PM  
To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>  
Cc: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>; Josh Halcomb <josh@trinityoilfieldservices.com>; Cynthia Jordan <cynthia@trinityoilfieldservices.com>  
Subject: [EXTERNAL] Request for Final Variance and Commitment to Compliance Going Forward

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Dear Mr. Bratcher,

I am reaching out to address a recent compliance issue that has been brought to our attention regarding the submission of reports without proper C141(n) confirmation sample notification dates. Upon thorough review, it has become apparent that some of the dates on our laboratory reports do not align with the notification dates sent, and regrettably, there were instances where notifications were mistakenly missed or not sent altogether. Please accept my sincere apologies for any inconvenience or concern this may have caused.

I want to assure you that this oversight was not intentional, and we are taking immediate steps to rectify the situation. Our team is diligently working to ensure that all necessary adjustments are made to comply with 19.15.29.12(D)1(a) NMAC. Furthermore, I want to emphasize that all other required information outlined in the Site Assessment and Remediation is complete and meets the 19.15.29 NMAC standards.

We fully recognize the significance of the C141(n) rule outlined in 19.15.29.12(D)1(a) NMAC, and have implemented comprehensive measures to ensure compliance across all our operations. Moving forward, all projects initiated since the issuance of the "Public Notice Implementation of Digital C-141 and Incident Statutes" on 12/01/2023, will strictly adhere to the requirement of submitting proper 48-hour notifications through the portal for confirmation sample dates.

In consideration of this issue, we are formally requesting a final variance for 19.15.29.12(D)1(a) NMAC on all projects started with release dates before 12/01/2023. We understand the importance of adhering to regulatory guidelines and acknowledge that there have been instances where our past projects did not fully meet this requirement.

Please know that we do not take this request lightly and assure you that it is not our intention to seek further variances regarding the 48-hour notice in the future. We are fully committed to ensuring compliance with all regulatory standards moving forward and have taken proactive steps to prevent similar issues from arising again.

We are available to discuss further at your best convenience and welcome the opportunity to provide any additional information or clarification you may require.

We sincerely appreciate your consideration of our request for a final variance and assure you of our unwavering commitment to compliance and continuous improvement. Our commitment to compliance with the 19.15.29 NMAC standards remains absolute, and we are dedicated to resolving this issue promptly and effectively. Thank you for your time and attention to this matter.

Sincerely,



Dan Dunkelberg  
Environmental Regulatory Manager

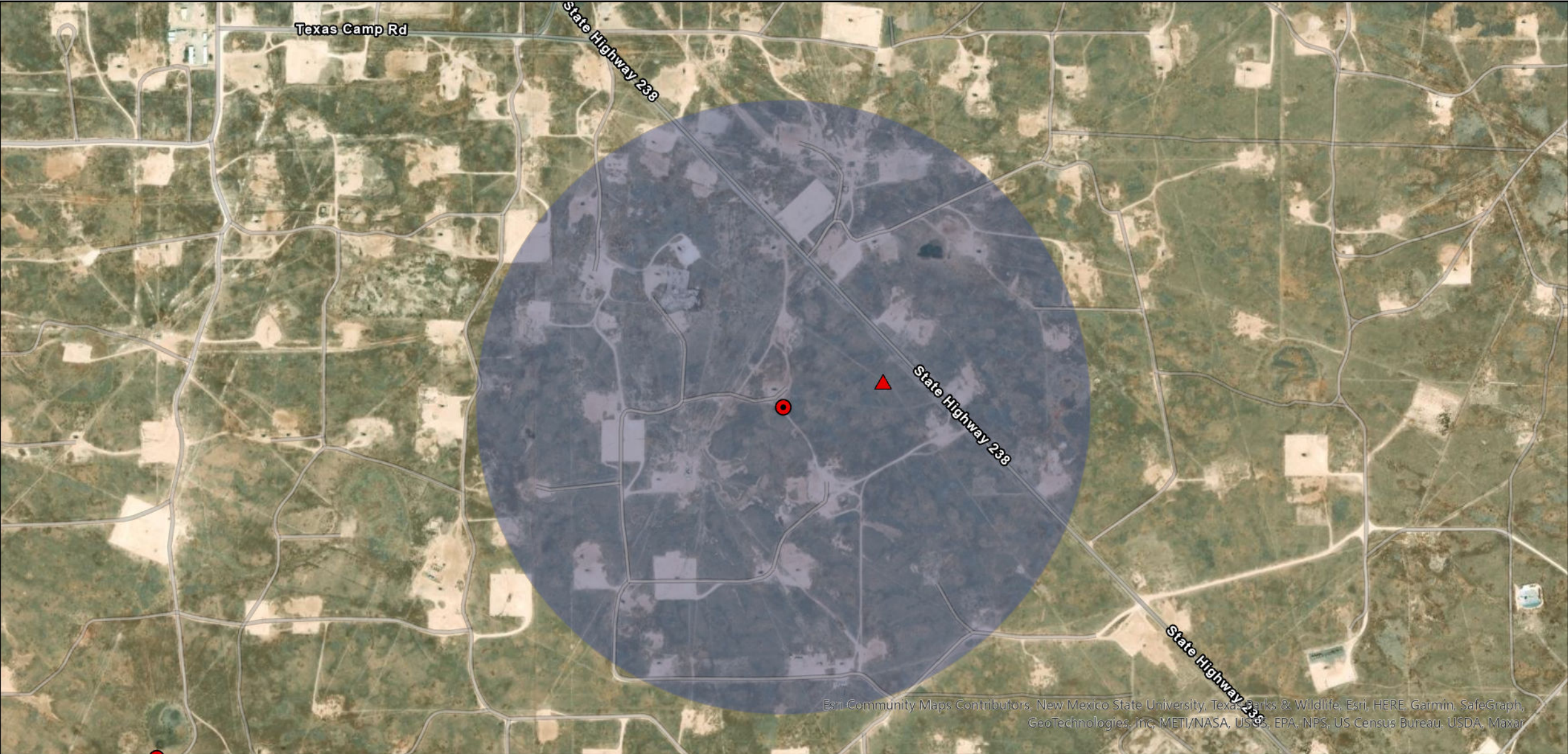
[Redacted Signature]

Trinity Oilfield Services & Rentals, LLC  
Cell: (575) 602-2403



<b>Kane Environmental Engineering</b> Boring/Completion Log		Kane Environmental Engineering 2351 E. State Highway 21 Lincoln, TX 78948 Phone: 281-379-6580		1 OF 1	
CLIENT: Morning Star Partners PROJECT: Depth to Water Program PROJECT NUMBER: LOCATION: Buckeye, N.M. BORING/WELL NAME: DTW 7 KANE REP: J. Rosen DRILLING METHOD: Coventional Rotary SAMPLING METHODS: Air Rotary Cuttings TOP CSG ELEV:    GRND. ELEV:		<b>Piezometer DTW 7</b>			
START/END: February 8, 2023		DRILLER: Scarborough Drilling: License 2969AKP 3068AKP NM License: WD-1188			
5" borehole with tricone bit		LATITUDE: 32.77567		LONGITUDE: -103.49953	
	CASING	DEPTH IN FEET	SOIL AND DRILLING DESCRIPTION		
			0 - 1.5' Topsoil, silty fine sand (SM-SP), w/angular pieces of caliche, brown, dry 1.5 - 17' Caliche, white to buff, lithified, hard		
		20	17 - 105' Sand (SP), creme to tan, very fine grained, soft, moisture content increases with depth		
		40	Sand contains random thin interbeds of hard caliche		
		60	Switch to drag bit at 60', and add minimal water/foam to enhance cuttings removal		
		80			
		100	Total depth (from ground surface) 105 feet No groundwater encountered upon completion of drilling		
		120	Machine slotted, threaded, Schedule 40 PVC screen from 85 - 105 feet bgs, blank casing surface to 85 ft		






**Legend**

- Soil Bore
- Site Location
- Half Mile Buffer

**Soil Bore Map**  
**Cross Timbers Energy, LLC**  
**Section 27 SWD Transfer Line**  
**Lea County, New Mexico**  
**NMOCD Reference #: NAPP2310731906**

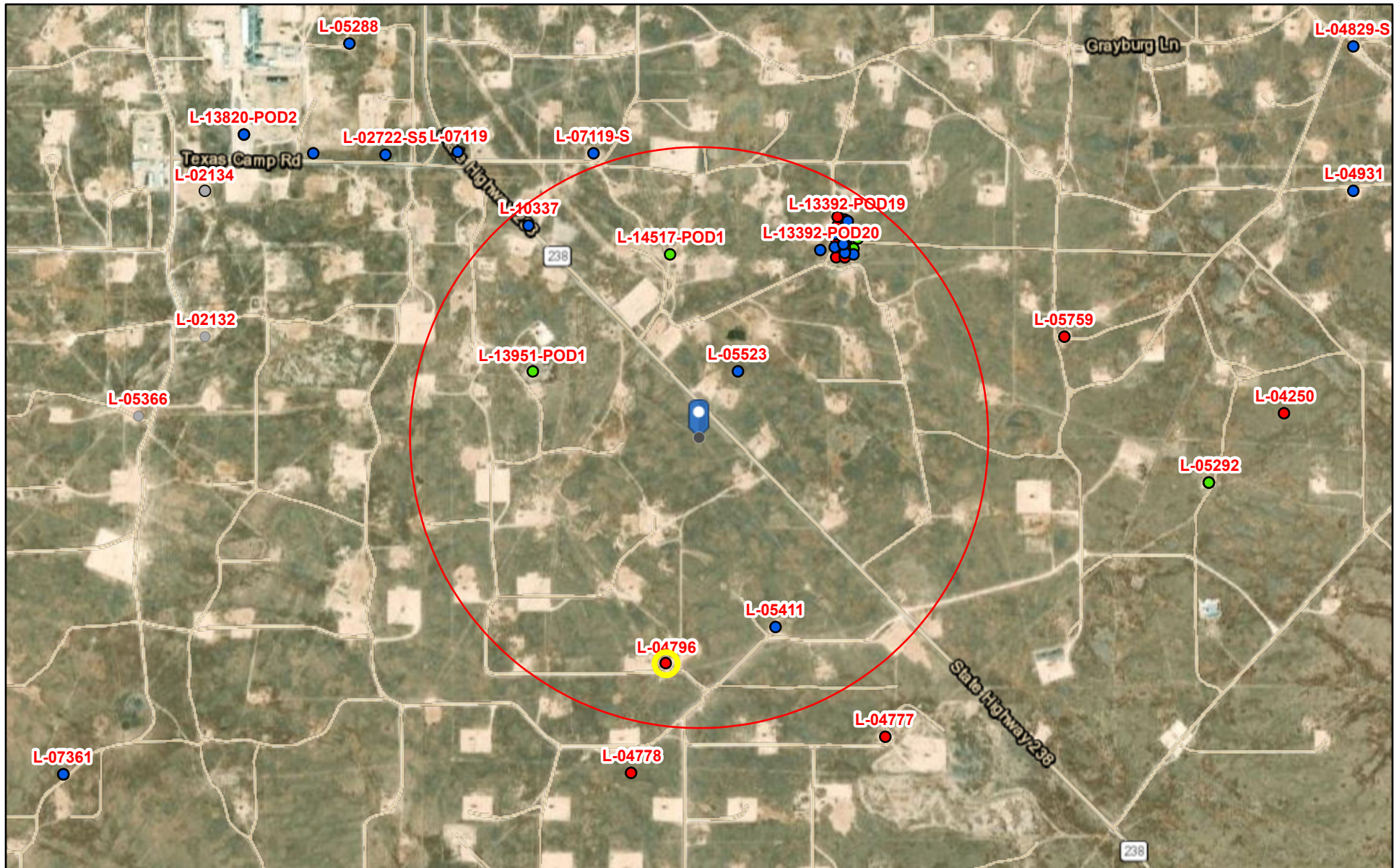
0 0.15 0.3 0.6 Miles

 **TRINITY**  
OILFIELD SERVICES

N



## NAPP2310731906 | SECTION 27 SWD TRANSFER LINE



5/2/2023, 3:46:26 PM

GIS WATERS PODs

- Active
- Pending
- Plugged

1:18,056

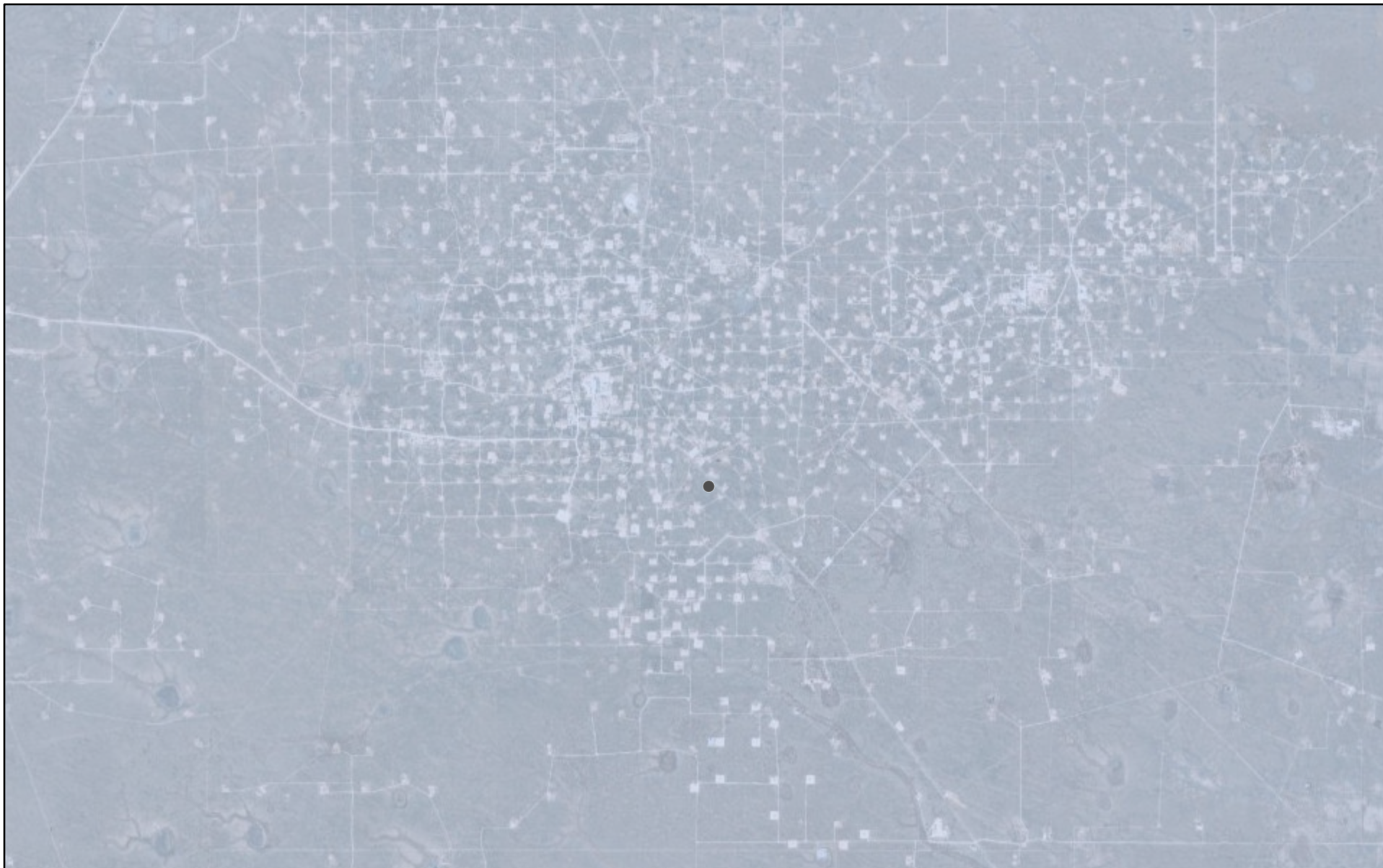
0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar



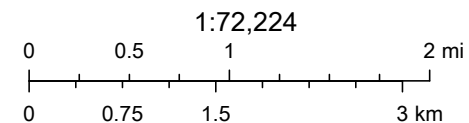
# NAPP2310731906 | SECTION 27 SWD TRANFER LINE



5/2/2023, 3:46:23 PM

Karst Occurrence Potential

 Low



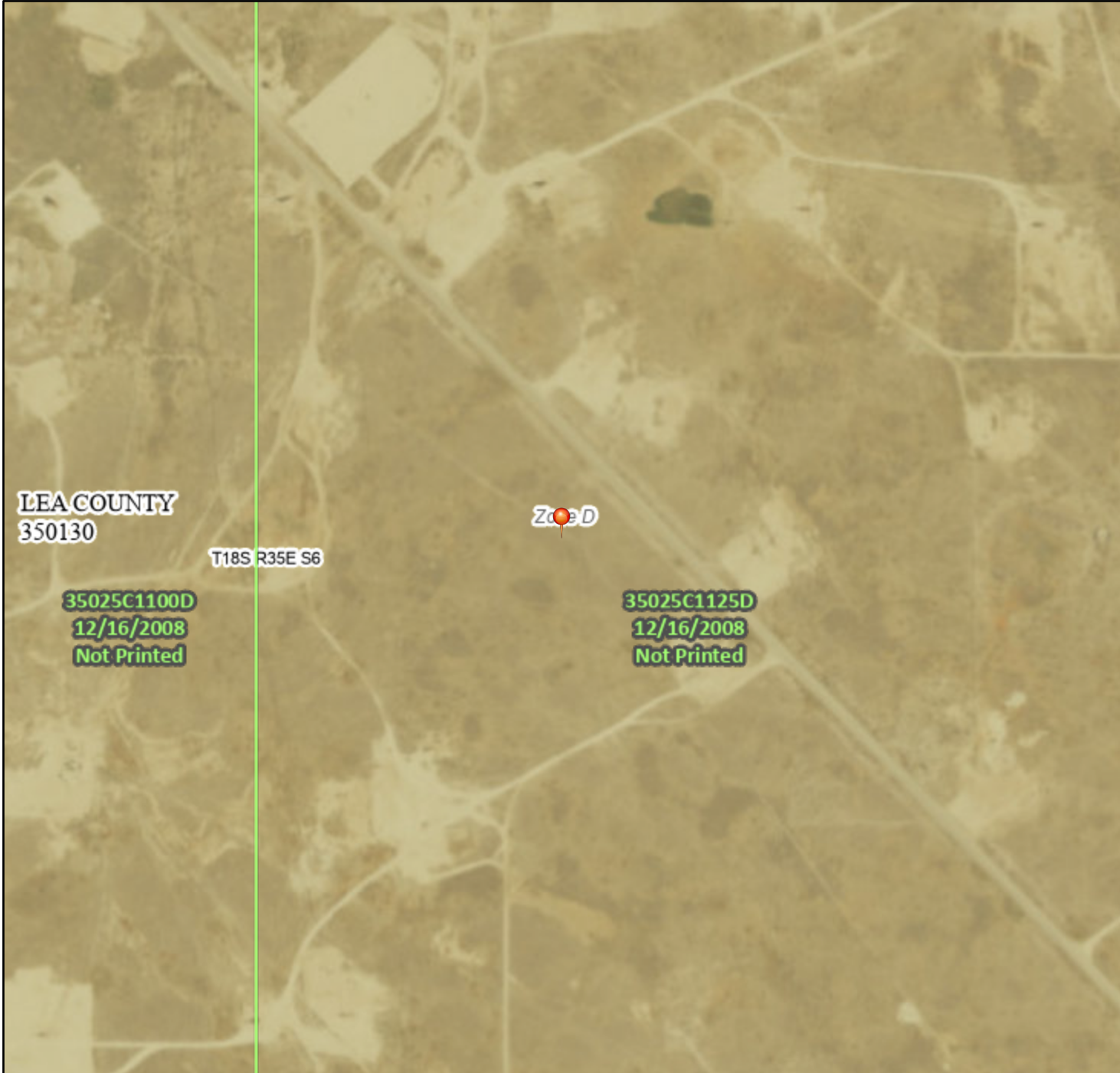
BLM, OCD, New Mexico Tech, Earthstar Geographics



# National Flood Hazard Layer FIRMMette



103°30'9"W 32°46'49"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
OTHER FEATURES		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/2/2023 at 5:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.





NAPP2310731906 | SECTION 27 SWD TRANSFER LINE



May 2, 2023

**Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.





A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Lea County, New Mexico

NAPP2310731906 | SECTION 27  
SWD TRANFER LINE



February 29, 2024



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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## How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and



## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.



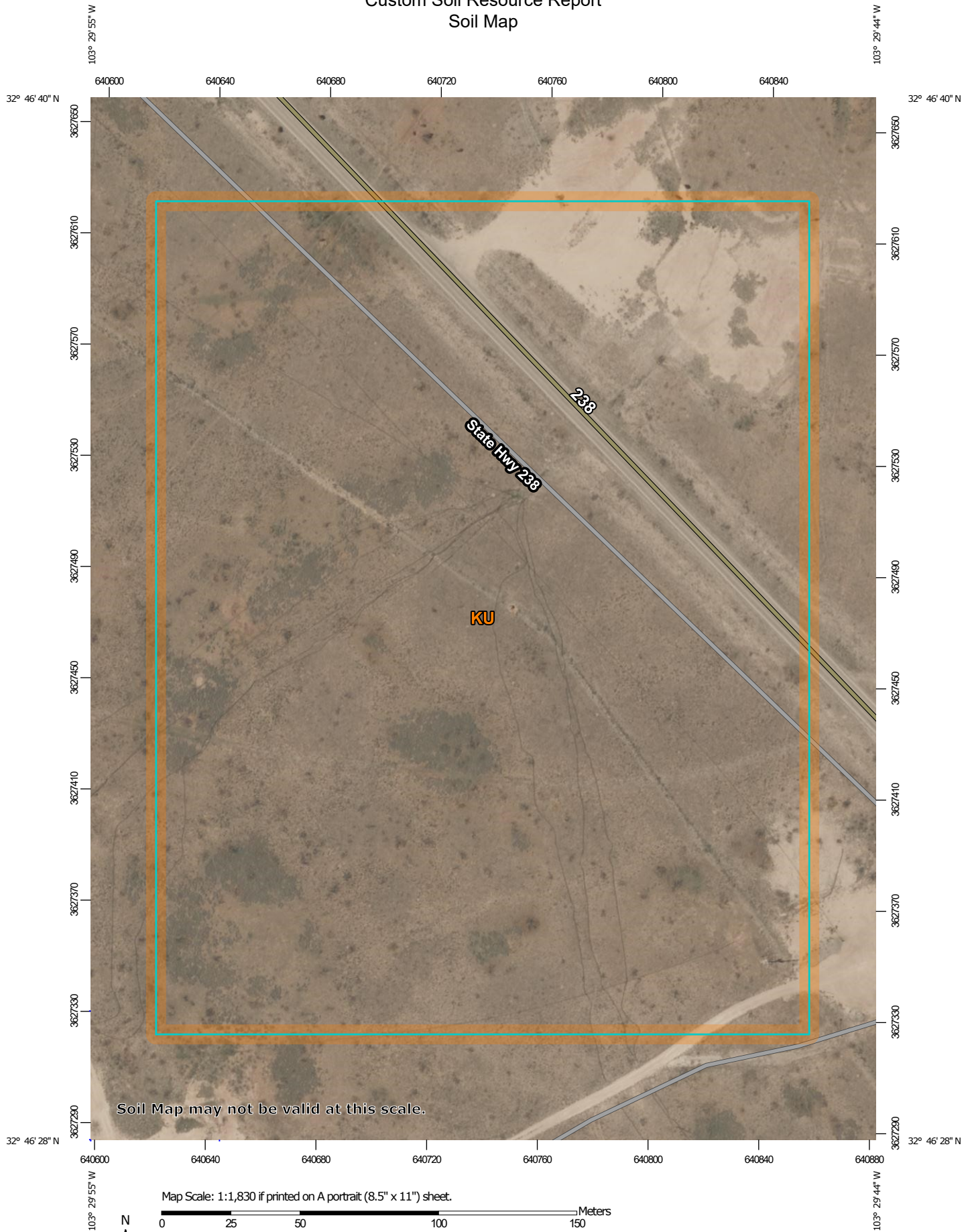
## Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



# Custom Soil Resource Report Soil Map






## Custom Soil Resource Report

## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)


## Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

## Special Point Features

 Blowout

 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

## Water Features

 Streams and Canals


## Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico  
Survey Area Data: Version 20, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	17.5	100.0%
<b>Totals for Area of Interest</b>		<b>17.5</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.



## Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Custom Soil Resource Report

## Lea County, New Mexico

## KU—Kimbrough-Lea complex, dry, 0 to 3 percent slopes

## Map Unit Setting

*National map unit symbol:* 2tw46*Elevation:* 2,500 to 4,800 feet*Mean annual precipitation:* 14 to 16 inches*Mean annual air temperature:* 57 to 63 degrees F*Frost-free period:* 180 to 220 days*Farmland classification:* Not prime farmland

## Map Unit Composition

*Kimbrough and similar soils:* 45 percent*Lea and similar soils:* 25 percent*Minor components:* 30 percent*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Kimbrough

## Setting

*Landform:* Playa rims, plains*Down-slope shape:* Convex, linear*Across-slope shape:* Concave, linear*Parent material:* Loamy eolian deposits derived from sedimentary rock

## Typical profile

*A - 0 to 3 inches:* gravelly loam*Bw - 3 to 10 inches:* loam*Bkkm1 - 10 to 16 inches:* cemented material*Bkkm2 - 16 to 80 inches:* cemented material

## Properties and qualities

*Slope:* 0 to 3 percent*Depth to restrictive feature:* 4 to 18 inches to petrocalcic*Drainage class:* Well drained*Runoff class:* Very high*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.01 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Calcium carbonate, maximum content:* 95 percent*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*Sodium adsorption ratio, maximum:* 1.0*Available water supply, 0 to 60 inches:* Very low (about 1.4 inches)

## Interpretive groups

*Land capability classification (irrigated):* None specified*Land capability classification (nonirrigated):* 7s*Hydrologic Soil Group:* D*Ecological site:* R077DY049TX - Very Shallow 12-17" PZ*Hydric soil rating:* No



## Custom Soil Resource Report

**Description of Lea****Setting**

*Landform:* Plains

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Calcareous, loamy eolian deposits from the blackwater draw formation of pleistocene age over indurated caliche of pliocene age

**Typical profile**

*A - 0 to 10 inches:* loam

*Bk - 10 to 18 inches:* loam

*Bkk - 18 to 26 inches:* gravelly fine sandy loam

*Bkkm - 26 to 80 inches:* cemented material

**Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* 22 to 30 inches to petrocalcic

*Drainage class:* Well drained

*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 90 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum:* 3.0

*Available water supply, 0 to 60 inches:* Very low (about 2.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* R077DY047TX - Sandy Loam 12-17" PZ

*Hydric soil rating:* No

**Minor Components****Kenhill**

*Percent of map unit:* 12 percent

*Landform:* Plains

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R077DY038TX - Clay Loam 12-17" PZ

*Hydric soil rating:* No

**Douro**

*Percent of map unit:* 12 percent

*Landform:* Plains

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R077DY047TX - Sandy Loam 12-17" PZ

*Other vegetative classification:* Unnamed (G077DH000TX)

*Hydric soil rating:* No



## Custom Soil Resource Report

### **Spraberry**

*Percent of map unit:* 6 percent

*Landform:* Playa rims, plains

*Down-slope shape:* Convex, linear

*Across-slope shape:* Linear

*Ecological site:* R077DY049TX - Very Shallow 12-17" PZ

*Other vegetative classification:* Unnamed (G077DH000TX)

*Hydric soil rating:* No



# Soil Information for All Uses

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## Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

## Soil Health

Soil health interpretations are designed to be used as tools for evaluating and managing a soil's capacity to function as a vital living ecosystem that sustains plants, animals, and humans. Example interpretations include compaction, surface sealing, carbon sequestration, resistance and resilience, management systems and practices, and cover crops.

## Fragile Soil Index

SOH - Soil Health

Soils can be rated based on their susceptibility to degradation in the "Fragile Soil Index" interpretation. Fragile soils are those that are most vulnerable to degradation. In other words, they can be easily degraded; they have a low resistance to degradation processes. They tend to be highly susceptible to erosion and can have a low capacity to recover after degradation has occurred (low resilience). Fragile soils are generally characterized by a low content of organic matter, low aggregate stability, and weak soil structure. They are generally located on sloping ground, have sparse plant cover, and tend to be in arid or semiarid regions. The index can be used for conservation and watershed planning to assist in identifying soils and areas highly vulnerable to degradation.

Depending on inherent soil characteristics and the climate, soils can vary from highly resistant, or stable, to vulnerable and extremely sensitive to degradation. Under stress, fragile soils can degrade to a new altered state, which may be less favorable or unfavorable for plant growth and less capable of performing soil functions. To assess the fragility of the soil, indicators of vulnerability to degradation



## Custom Soil Resource Report

processes are used. They include organic matter, soil structure, rooting depth, vegetative cover, slope, and aridity.

The organic matter content indicates the capacity of the soil to resist and/or recover from degradation processes. Organic matter improves the soil pore structure, increases water infiltration, and reduces soil compaction and soil erosion. Soil structure indicates the capacity of the soil to resist degradation from accelerated water erosion (by increasing the amount of infiltration). Pore structure is the most important aspect of soil structure as pores provide habitat for organism. Shallow soils are more vulnerable to degradation processes because they have limited rooting depth and have a reduced amount of material from which to form new soil. As erosion removes the upper soil profile, productivity will decline if the subsoil is limiting for crop growth. Vegetative cover is very important as uncovered soil is most vulnerable to the processes of soil erosion, both by wind and water. Slope (a measure of the steepness or the degree of inclination) indicates the degree of vulnerability to erosion and mass movement. Aridity is defined by the shortage of moisture. Lack of water is a main factor limiting biological processes and the ability of the soil to resist and/or recover from degradation.

Soils are placed into interpretive classes based on their index rating, which ranges from 0 to 1. An index rating of 1 is the most fragile, while a rating of zero is the least fragile. Interpretative classes are as follows:

Not Fragile (index rating less than or equal to 0.009) These soils have a very high potential to resist degradation and be highly resilient. They are highly structured with an organic matter content greater than 5.7%, are nearly level, are deep or very deep, have greater than 85% vegetative cover, and are in a climate that is wet or very wet.

Slightly Fragile (index rating less than 0.009 and less than or equal to 0.209) These soils have a high potential to resist degradation and be resilient. They are:

- Poorly structured to weakly structured soils that have an extremely low to moderate content of organic matter, are very deep, have high vegetative cover, occur on nearly level ground, and are in wet or very wet climates;
- Highly structured soils that have a very high content of organic matter, are very shallow to moderately deep, have high vegetative cover, occur on nearly level ground, and are in wet or very wet climates;
- Highly structured soils that have a very high content of organic matter, are very deep, have low to moderately high vegetative cover, occur on nearly level ground, and are in wet or very wet climates;
- Highly structured soils that have a very high content of organic matter, are very deep, have high vegetative cover; are on slopes greater than 3%, and are in wet or very wet climates; or
- Highly structured soils that have a very high content of organic matter, are very deep, have high vegetative cover; occur on nearly level ground, and in semi-dry to mildly wet climates;



## Custom Soil Resource Report

Moderately Fragile (index rating greater than 0.209 and less than or equal to 0.409) These soils have a moderate potential to resist degradation and be moderately resilient. They are:

— Highly structured soils that have a very high content of organic matter, are very shallow, have high vegetative cover, occur in nearly level to moderately sloping areas, and are in semi-dry climates;

— Poorly structured soils that have an extremely low content of organic matter, are deep, have low vegetative cover, occur in nearly level areas, and are in wet or very wet climates;

— Poorly structured soils that have an extremely low content of organic matter, occur on gentle to very steep slopes, have high vegetative cover, and are in wet or very wet climates;

— Weakly structured soils that have a very low content of organic matter, are deep, occur in nearly level to gently sloping areas, have high vegetative cover, and are in semi-dry climates; or

— Weakly structured soils that have a very low content of organic matter, are very shallow to very deep, occur in nearly level to strongly sloping areas, have high vegetative cover, and are in mildly wet climates.

Fragile (index rating greater than 0.409 and less than or equal to 0.609) These soils have a low potential to resist degradation and low resilience. They are:

— Well structured soils that have a low content of organic matter, are shallow to very deep, have moderate to moderately high vegetative cover, occur on steep slopes, and are in dry climates;

— Well structured soils that have a low content of organic matter, are shallow to very deep, have a low vegetative cover, occur in nearly level to gently sloping areas, and are in dry climates;

— Well structured soils that have a low content of organic matter, are deep, have low vegetative cover, occur on nearly level to very steep slopes, and are in a semi-dry climate;

— Moderately structured soils that have a very low content of organic matter, are deep, have moderately high vegetative cover, occur on moderately steep to very steep slopes, and are in semi-dry climates; or

— Weakly structured soils that have a low content of organic matter, occur on moderately steep to very steep slopes, have low vegetative cover, and are in wet or very wet climates.

Very Fragile (index rating greater than 0.609 and less than or equal to 0.809) These soils have a very low potential to resist degradation and very low resilience. They are:



## Custom Soil Resource Report

— Weakly structured soils that have an extremely low content of organic matter, are deep, have low vegetative cover, occur on nearly level to very steep slopes, and are in dry climates;

— Weakly structured soils that have an extremely low content of organic matter, are shallow to very deep, have low vegetative cover, occur on nearly level to very steep slopes, and are in very dry climates; or

— Poorly structured soils that have an extremely low content of organic matter, are very shallow, have no vegetative cover, occur on steep slopes, and are in mildly wet to wet climates.

Extremely Fragile (index rating greater than 0.809 and less than or equal to 1.0)  
These soils can have no potential to resist degradation and no resilience. They are:

— Poorly structured soils that have an extremely low content of organic matter, are very shallow, have low vegetative cover, occur on very steep slopes, and are in dry or very dry climates;

— Weakly structured soils that have a very low content of organic matter, are nearly level to very deep, have low vegetative cover, occur on very steep slopes, and are in dry climates; or

— Very shallow soils on steep slopes.

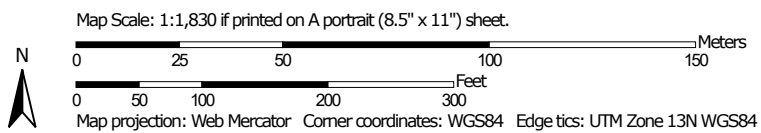
The interpretive rating is based on soils that occur in the dominant land use for the map unit component and may not represent soils that occur in site-specific land uses.



# Custom Soil Resource Report Map—Fragile Soil Index



Soil Map may not be valid at this scale.






## Custom Soil Resource Report








## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)

## Soils






## Soil Rating Polygons


-  Extremely fragile
-  Highly fragile
-  Fragile
-  Moderately fragile
-  Slightly fragile
-  Not fragile
-  Not rated or not available

## Soil Rating Lines


-  Extremely fragile
-  Highly fragile
-  Fragile
-  Moderately fragile
-  Slightly fragile
-  Not fragile
-  Not rated or not available

## Soil Rating Points






-  Extremely fragile
-  Highly fragile
-  Fragile
-  Moderately fragile
-  Slightly fragile
-  Not fragile

 Not rated or not available


## Water Features

 Streams and Canals

## Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico  
Survey Area Data: Version 20, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

## Tables—Fragile Soil Index

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	Fragile	Kimbrough (45%)	Poor structure (1.00)	17.5	100.0%
				Dry (0.70)		
				Low organic matter (0.69)		
				Shallow (0.65)		
				High vegetative cover (0.07)		
			Kenhill (12%)	Poor structure (1.00)		
				Very low organic matter (0.91)		
				Dry (0.70)		
				Moderately deep (0.27)		
				Moderately-high vegetative cover (0.14)		
			Douro (12%)	Extremely low organic matter (0.95)		
				Weakly structured (0.75)		
				Dry (0.70)		
				Moderately deep (0.25)		
				Nearly level (0.02)		
			Spraberry (6%)	Extremely low organic matter (0.97)		
				Weakly structured (0.75)		
				Dry (0.70)		
				Moderately deep (0.45)		
				High vegetative cover (0.07)		
Totals for Area of Interest					17.5	100.0%



## Custom Soil Resource Report

Rating	Acres in AOI	Percent of AOI
Fragile	17.5	100.0%
<b>Totals for Area of Interest</b>	<b>17.5</b>	<b>100.0%</b>

## Rating Options—Fragile Soil Index

### *Aggregation Method: Dominant Condition*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

### *Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

### *Tie-break Rule: Higher*

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.



## Custom Soil Resource Report

## Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## Soil Chemical Properties

Soil Chemical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil chemical properties include pH, cation exchange capacity, calcium carbonate, gypsum, and electrical conductivity.

### Gypsum

The content of gypsum is the percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils high in content of gypsum, such as those with more than 10 percent gypsum, may collapse if the gypsum is removed by percolating water. Gypsum is corrosive to concrete.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.



Custom Soil Resource Report  
Map—Gypsum



Soil Map may not be valid at this scale.

Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.

0 25 50 100 150 Meters  
0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84







## Custom Soil Resource Report

**Table—Gypsum**

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	0	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—Gypsum**

*Units of Measure:* percent

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Interpret Nulls as Zero:* Yes



## Custom Soil Resource Report

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

*Layer Options (Horizon Aggregation Method):* Surface Layer (Not applicable)

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

## Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

### K Factor, Whole Soil

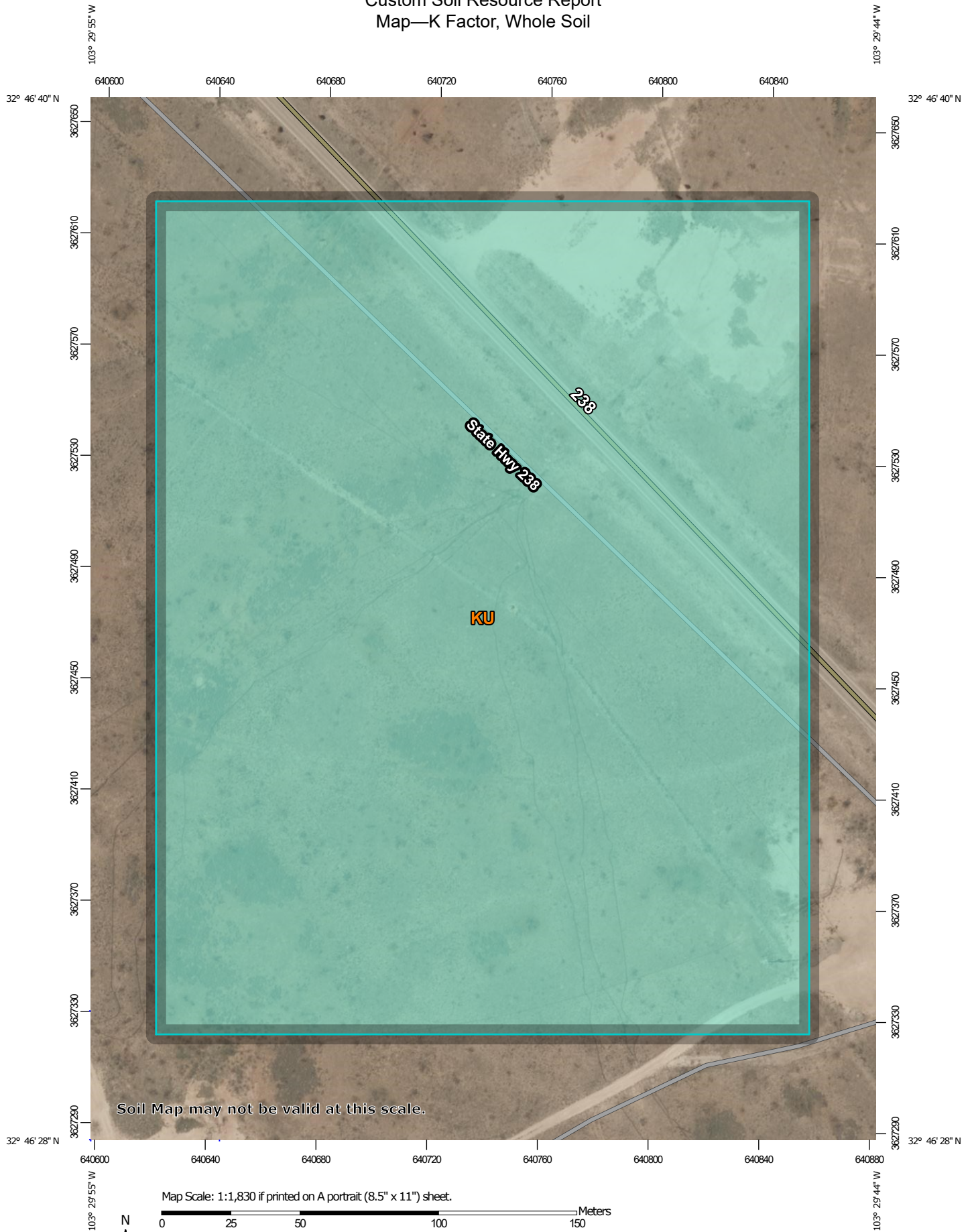
Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.



Custom Soil Resource Report  
Map—K Factor, Whole Soil






## Custom Soil Resource Report
















## MAP LEGEND

## Area of Interest (AOI)







 Area of Interest (AOI)










## Soils

## Soil Rating Polygons
















	.02
	.05
	.10
	.15
	.17
	.20
	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

## Soil Rating Lines








	.02
	.05
	.10
	.15
	.17
	.20

	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

## Soil Rating Points

	.02
	.05
	.10
	.15
	.17
	.20
	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

## Water Features

	Streams and Canals
	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads
	Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico  
Survey Area Data: Version 20, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—K Factor, Whole Soil**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	.32	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—K Factor, Whole Soil***Aggregation Method: Dominant Condition*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule: Higher*



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Layer Options (Horizon Aggregation Method):* Surface Layer (Not applicable)

For an attribute of a soil horizon, a depth qualification must be specified. In most cases it is probably most appropriate to specify a fixed depth range, either in centimeters or inches. The Bottom Depth must be greater than the Top Depth, and the Top Depth can be greater than zero. The choice of "inches" or "centimeters" only applies to the depth of soil to be evaluated. It has no influence on the units of measure the data are presented in.

When "Surface Layer" is specified as the depth qualifier, only the surface layer or horizon is considered when deriving a value for a component, but keep in mind that the thickness of the surface layer varies from component to component.

When "All Layers" is specified as the depth qualifier, all layers recorded for a component are considered when deriving the value for that component.

Whenever more than one layer or horizon is considered when deriving a value for a component, and the attribute being aggregated is a numeric attribute, a weighted average value is returned, where the weighting factor is the layer or horizon thickness.

## Wind Erodibility Group

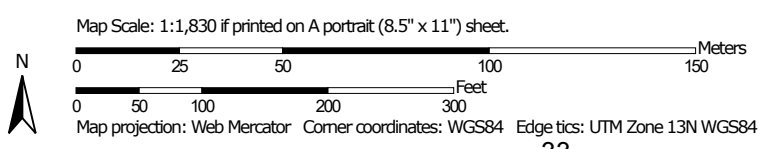
A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.



Custom Soil Resource Report  
Map—Wind Erodibility Group



Soil Map may not be valid at this scale.






## Custom Soil Resource Report


## MAP LEGEND

## Area of Interest (AOI)











 Area of Interest (AOI)

## Soils

## Soil Rating Polygons

- |                                                                                   |                            |
|-----------------------------------------------------------------------------------|----------------------------|
|  | 1                          |
|  | 2                          |
|  | 3                          |
|  | 4                          |
|  | 4L                         |
|  | 5                          |
|  | 6                          |
|  | 7                          |
|  | 8                          |
|  | Not rated or not available |


## Soil Rating Lines

- |                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
|    | 1                          |
|    | 2                          |
|    | 3                          |
|  | 4                          |
|  | 4L                         |
|  | 5                          |
|  | 6                          |
|  | 7                          |
|  | 8                          |
|  | Not rated or not available |






## Soil Rating Points

- |                                                                                   |                            |
|-----------------------------------------------------------------------------------|----------------------------|
|  | 1                          |
|  | 2                          |
|  | 3                          |
|  | 4                          |
|  | 4L                         |
|  | 5                          |
|  | 6                          |
|  | 7                          |
|  | 8                          |
|  | Not rated or not available |


## Water Features

 Streams and Canals

## Transportation

- |                                                                                    |                     |
|------------------------------------------------------------------------------------|---------------------|
|   | Rails               |
|   | Interstate Highways |
|   | US Routes           |
|   | Major Roads         |
|  | Local Roads         |

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 20, Sep 6, 2023

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Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

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## Custom Soil Resource Report

**Table—Wind Erodibility Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	5	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—Wind Erodibility Group***Aggregation Method: Dominant Condition*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule: Lower*



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

### Wind Erodibility Index

The wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

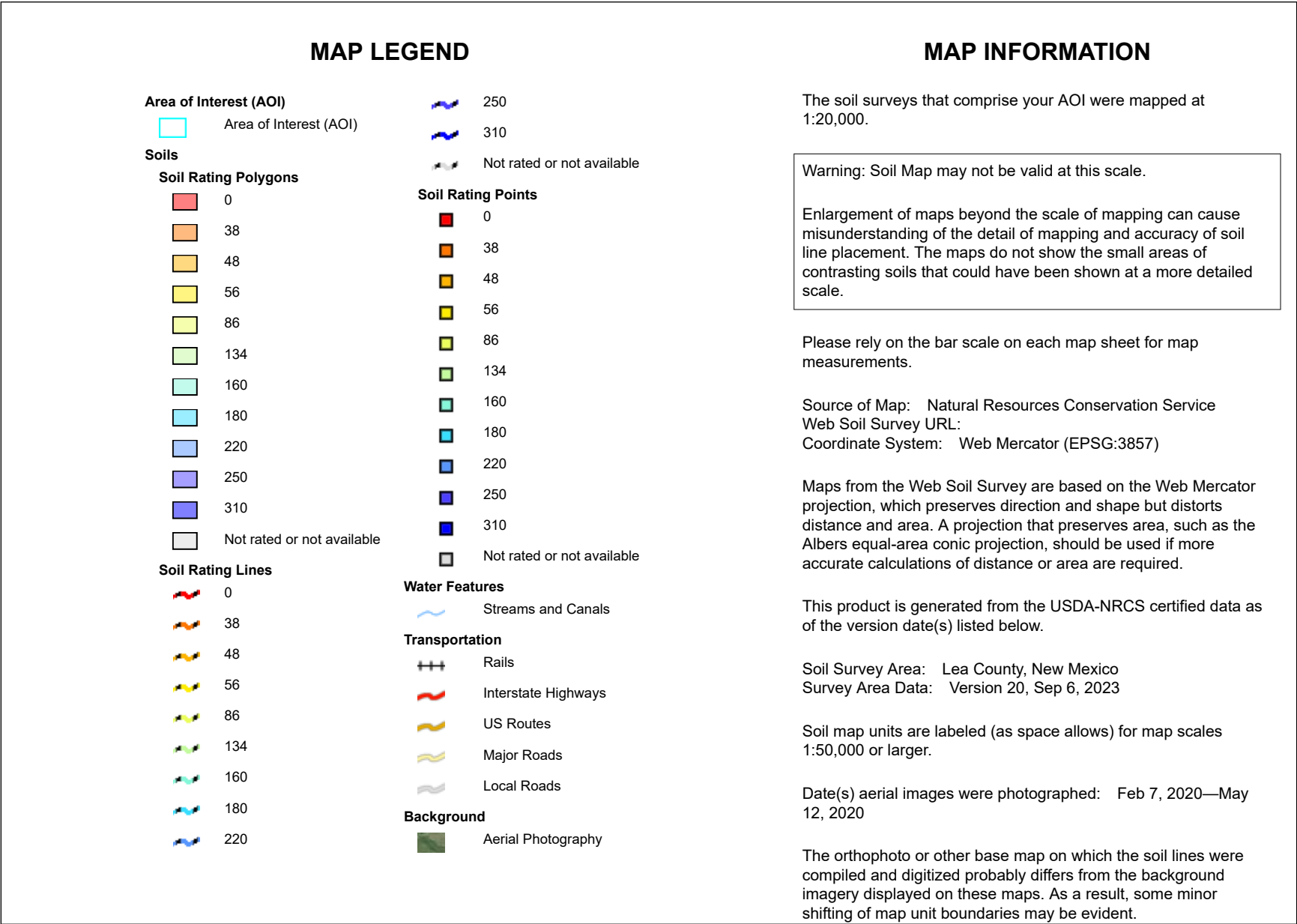


Custom Soil Resource Report  
Map—Wind Erodibility Index





Custom Soil Resource Report





## Custom Soil Resource Report

**Table—Wind Erodibility Index**

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	56	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—Wind Erodibility Index**

*Units of Measure:* tons per acre per year

*Aggregation Method:* Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher



## Custom Soil Resource Report

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

## Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## Depth to Bedrock

The term bedrock in soil survey refers to a continuous root and water restrictive layer of rock that occurs within the soil profile.

There are many types of restrictions that can occur within the soil profile but this theme only includes the three restrictions that use the term bedrock. These are:

- 1) Lithic Bedrock
- 2) Paralithic Bedrock
- 3) Densic Bedrock

Lithic bedrock and paralithic bedrock are comprised of igneous, metamorphic, and sedimentary rocks, which are coherent and consolidated into rock through pressure, heat, cementation, or fusion. Lithic bedrock represents the hardest type of bedrock, with a hardness of strongly coherent to indurated. Paralithic bedrock has a hardness of extremely weakly coherent to moderately coherent. It can occur as a thin layer of weathered bedrock above harder lithic bedrock. Paralithic bedrock can also be much thicker, extending well below the soil profile.

Densic bedrock represents a unique kind of bedrock recognized within the soil survey. It is non-coherent and consolidated, dense root restrictive material, formed by pressure, heat, and dewatering of earth materials or sediments. Densic bedrock differs from densic materials, which formed under the compaction of glaciers, mudflows, and or human-caused compaction.

If more than one type of bedrock is described for an individual soil type, the depth to the shallowest one is given. If no bedrock is described in a map unit, it is represented by the "greater than 200" depth class.

Depth to bedrock is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil

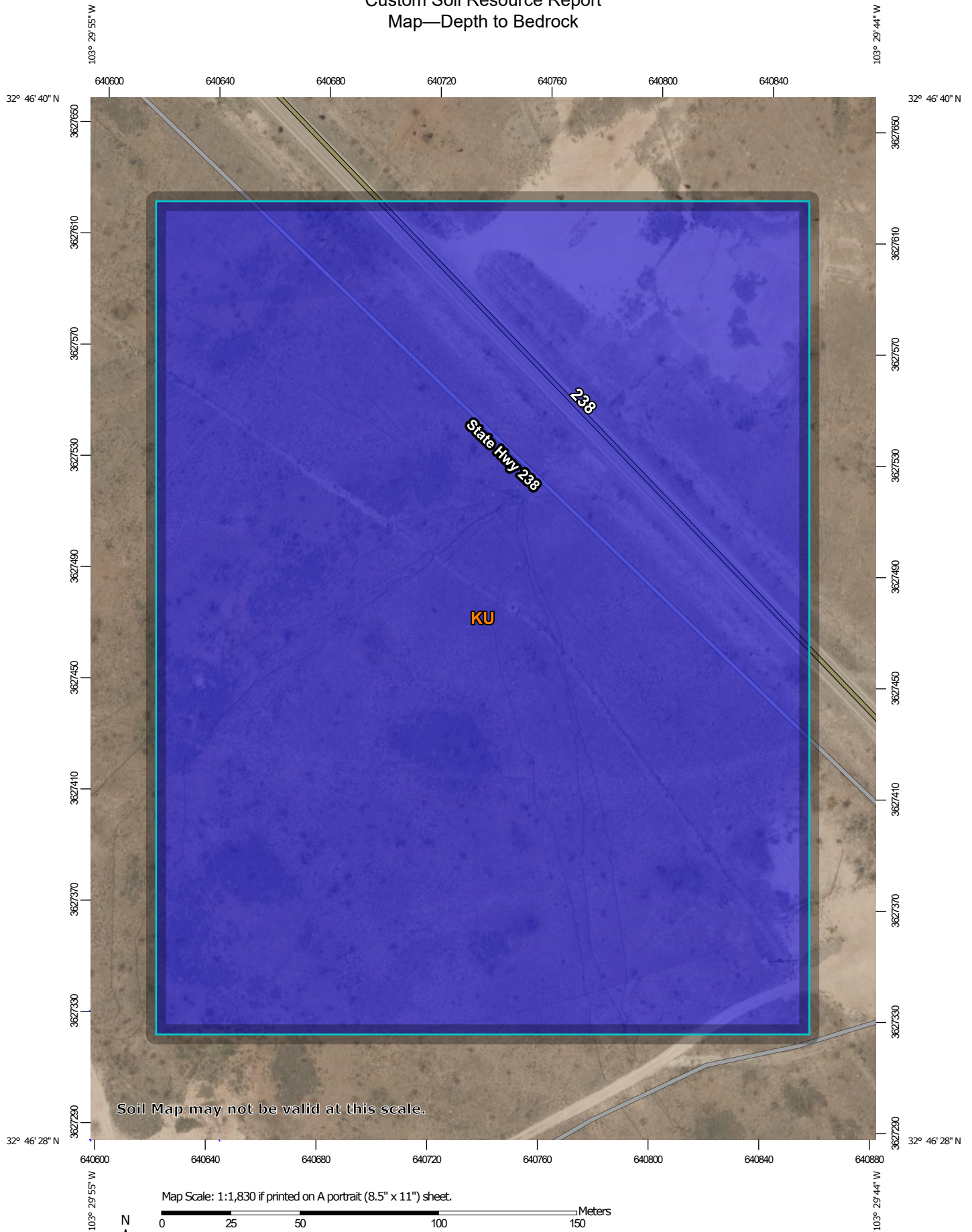


## Custom Soil Resource Report

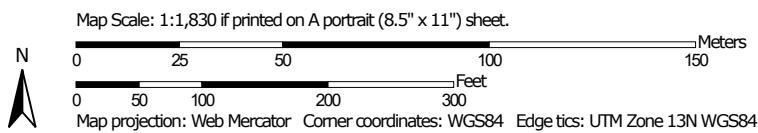
component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.



Custom Soil Resource Report  
Map—Depth to Bedrock



Soil Map may not be valid at this scale.






## Custom Soil Resource Report








## MAP LEGEND

## Area of Interest (AOI)



 Area of Interest (AOI)

## Soils







## Soil Rating Polygons


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

## Soil Rating Lines


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

## Soil Rating Points






-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200

 Not rated or not available


## Water Features

 Streams and Canals

## Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

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## Custom Soil Resource Report

**Table—Depth to Bedrock**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	>200	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—Depth to Bedrock**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Interpret Nulls as Zero:* No



## Custom Soil Resource Report

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

### **Depth to Any Soil Restrictive Layer**

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "greater than 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.



Custom Soil Resource Report  
Map—Depth to Any Soil Restrictive Layer



Soil Map may not be valid at this scale.

Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.

0 25 50 100 150 Meters  
0 50 100 200 300 Feet


Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



## Custom Soil Resource Report








## MAP LEGEND

## Area of Interest (AOI)


 Area of Interest (AOI)

## Soils







## Soil Rating Polygons


	0 - 25
	25 - 50
	50 - 100
	100 - 150
	150 - 200
	> 200
	Not rated or not available

## Soil Rating Lines


	0 - 25
	25 - 50
	50 - 100
	100 - 150
	150 - 200
	> 200
	Not rated or not available

## Soil Rating Points






	0 - 25
	25 - 50
	50 - 100
	100 - 150
	150 - 200
	> 200

 Not rated or not available


## Water Features

 Streams and Canals

## Transportation

	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

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Please rely on the bar scale on each map sheet for map measurements.

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Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

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Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—Depth to Any Soil Restrictive Layer**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	25	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—Depth to Any Soil Restrictive Layer**

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Interpret Nulls as Zero:* No



## Custom Soil Resource Report

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.

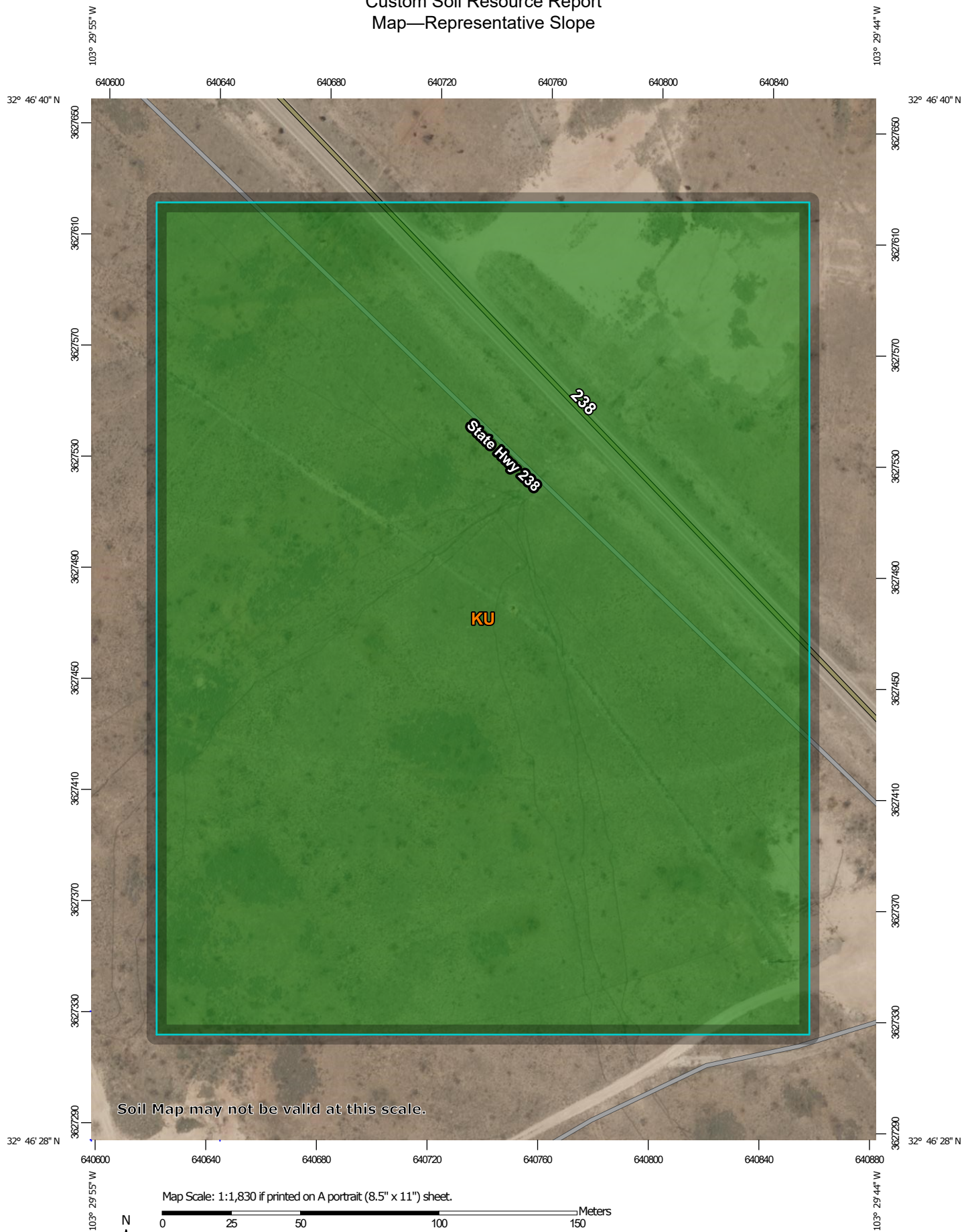
### Representative Slope

Slope gradient is the difference in elevation between two points, expressed as a percentage of the distance between those points.

The slope gradient is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.



Custom Soil Resource Report  
Map—Representative Slope



Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.

0 25 50 100 150 Meters  
0 50 100 200 300 Feet

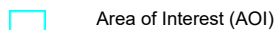
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84



## Custom Soil Resource Report

## MAP LEGEND

## Area of Interest (AOI)



Area of Interest (AOI)

## Soils

## Soil Rating Polygons



0 - 5



5 - 15



15 - 45



45 - 60



60 - 100

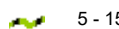


Not rated or not available

## Soil Rating Lines



0 - 5



5 - 15



15 - 45



45 - 60



60 - 100



Not rated or not available

## Soil Rating Points



0 - 5



5 - 15



15 - 45



45 - 60



60 - 100



Not rated or not available

## Water Features



Streams and Canals

## Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

## Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico  
Survey Area Data: Version 20, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Custom Soil Resource Report

**Table—Representative Slope**

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	1.0	17.5	100.0%
<b>Totals for Area of Interest</b>			<b>17.5</b>	<b>100.0%</b>

**Rating Options—Representative Slope**

*Units of Measure:* percent

*Aggregation Method:* Dominant Component

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Component" returns the attribute value associated with the component with the highest percent composition in the map unit. If more than one component shares the highest percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher attribute value should be returned in the case of a percent composition tie. The result returned by this aggregation method may or may not represent the dominant condition throughout the map unit.

*Component Percent Cutoff:* None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

*Tie-break Rule:* Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

*Interpret Nulls as Zero:* No



## Custom Soil Resource Report

This option indicates if a null value for a component should be converted to zero before aggregation occurs. This will be done only if a map unit has at least one component where this value is not null.



## References

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- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
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- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelpdb1043084>



## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

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**NMSLO Seed Mix****Coarse (CS)****COARSE (CS) SITES SEED MIXTURE:**

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX
<b>Grasses:</b>			
Sand bluestem	VNS, Southern	2.0	F
Sideoats grama	Vaughn, El Reno	2.0	F
Blue grama	Hachita, Lovington	1.5	D
Little bluestem	Cimmaron, Pastura	1.5	F
Sand dropseed	VNS, Southern	1.0	S
Plains bristlegrass	VNS, Southern	0.75	D
<b>Forbs:</b>			
Parry penstemon	VNS, Southern	1.0	D
Desert globemallow	VNS, Southern	1.0	D
White prairieclover	Kaneb, VNS	0.5	D
Sulfur buckwheat	VNS, Southern	0.5	D
<b>Shrubs:</b>			
Fourwing saltbush	VNS, Southern	1.0	D
Skunkbush sumac	VNS, Southern	1.0	D
Common winterfat	VNS, Southern	1.0	F
Fringed sagewort	VNS, Southern	0.5	F
<b>Total PLS/acre</b>		<b>18.25</b>	

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box

- VNS, Southern – No Variety Stated, seed should be from a southern latitude collection of this species.
- Double above seed rates for broadcast or hydroseeding.
- If Parry is not available, substitute firecracker penstemon.
- If desert globemallow is not available, substitute scarlet globemallow.
- If one species is not available, provide a suggested substitute to the New Mexico Land Office for approval. Increasing all other species proportionately may be acceptable.







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May 10, 2023

DAN DUNKELBERG

TRINITY OILFIELD SERVICES & RENTALS, LLC

P. O. BOX 2587

HOBBS, NM 88241

RE: SECTION 27 SWD TRANSFER LINE

Enclosed are the results of analyses for samples received by the laboratory on 05/05/23 15:22.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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".

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DV-001.0-00.0-P (H232249-01)**

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>31.9</b>	5.00	05/09/2023	ND	2.20	110	2.00	5.75	
<b>Toluene*</b>	<b>127</b>	5.00	05/09/2023	ND	2.18	109	2.00	6.60	
<b>Ethylbenzene*</b>	<b>234</b>	5.00	05/09/2023	ND	2.12	106	2.00	6.02	
<b>Total Xylenes*</b>	<b>235</b>	15.0	05/09/2023	ND	6.43	107	6.00	5.35	
<b>Total BTEX</b>	<b>628</b>	30.0	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>16.0</b>	16.0	05/08/2023	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10*</b>	<b>5970</b>	100	05/08/2023	ND	183	91.3	200	1.12		
<b>DRO &gt;C10-C28*</b>	<b>51400</b>	100	05/08/2023	ND	185	92.6	200	1.42		
<b>EXT DRO &gt;C28-C36</b>	<b>9670</b>	100	05/08/2023	ND						

Surrogate: 1-Chlorooctane 1200 % 48.2-134

Surrogate: 1-Chlorooctadecane 1540 % 49.1-148

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DV-001.0-01.0-P (H232249-02)**

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	9.43	2.00	05/09/2023	ND	2.20	110	2.00	5.75		
Toluene*	79.0	2.00	05/09/2023	ND	2.18	109	2.00	6.60		
Ethylbenzene*	172	2.00	05/09/2023	ND	2.12	106	2.00	6.02		
Total Xylenes*	176	6.00	05/09/2023	ND	6.43	107	6.00	5.35		
Total BTEX	436	12.0	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 120 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>32.0</b>	16.0	05/08/2023	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	4460	100	05/08/2023	ND	183	91.3	200	1.12		
DRO >C10-C28*	23300	100	05/08/2023	ND	185	92.6	200	1.42		
EXT DRO >C28-C36	4020	100	05/08/2023	ND						

Surrogate: 1-Chlorooctane 704 % 48.2-134

Surrogate: 1-Chlorooctadecane 697 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DV-001.0-02.0-P (H232249-03)**

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	05/09/2023	ND	2.20	110	2.00	5.75	
Toluene*	0.224	0.050	05/09/2023	ND	2.18	109	2.00	6.60	
Ethylbenzene*	1.19	0.050	05/09/2023	ND	2.12	106	2.00	6.02	
Total Xylenes*	1.76	0.150	05/09/2023	ND	6.43	107	6.00	5.35	
Total BTEX	3.18	0.300	05/09/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 129 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	05/09/2023	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	60.9	10.0	05/08/2023	ND	183	91.3	200	1.12	
DRO >C10-C28*	2060	10.0	05/08/2023	ND	185	92.6	200	1.42	
EXT DRO >C28-C36	682	10.0	05/08/2023	ND					

Surrogate: 1-Chlorooctane 88.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 85.0 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DH-001.0-01.0-P (H232249-04)**

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	05/09/2023	ND	2.20	110	2.00	5.75		
Toluene*	<0.050	0.050	05/09/2023	ND	2.18	109	2.00	6.60		
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.12	106	2.00	6.02		
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.43	107	6.00	5.35		
Total BTEX	<0.300	0.300	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	05/09/2023	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/08/2023	ND	183	91.3	200	1.12	
DRO >C10-C28*	<10.0	10.0	05/08/2023	ND	185	92.6	200	1.42	
EXT DRO >C28-C36	10.5	10.0	05/08/2023	ND					

Surrogate: 1-Chlorooctane 71.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 81.7 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DH-002.0-01.0-P (H232249-05)**

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	05/09/2023	ND	2.20	110	2.00	5.75		
Toluene*	<0.050	0.050	05/09/2023	ND	2.18	109	2.00	6.60		
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.12	106	2.00	6.02		
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.43	107	6.00	5.35		
Total BTEX	<0.300	0.300	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	05/09/2023	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/08/2023	ND	183	91.3	200	1.12	
DRO >C10-C28*	35.8	10.0	05/08/2023	ND	185	92.6	200	1.42	
EXT DRO >C28-C36	<10.0	10.0	05/08/2023	ND					

Surrogate: 1-Chlorooctane 76.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DH-003.0-01.0-P (H232249-06)**

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	05/09/2023	ND	2.20	110	2.00	5.75		
Toluene*	<0.050	0.050	05/09/2023	ND	2.18	109	2.00	6.60		
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.12	106	2.00	6.02		
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.43	107	6.00	5.35		
Total BTEx	<0.300	0.300	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	05/09/2023	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/08/2023	ND	183	91.3	200	1.12	
DRO >C10-C28*	13.3	10.0	05/08/2023	ND	185	92.6	200	1.42	
EXT DRO >C28-C36	<10.0	10.0	05/08/2023	ND					

Surrogate: 1-Chlorooctane 70.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 81.7 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	05/05/2023	Sampling Date:	05/05/2023
Reported:	05/10/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS		

**Sample ID: DH-004.0-01.0-P (H232249-07)**

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	05/09/2023	ND	2.20	110	2.00	5.75		
Toluene*	<0.050	0.050	05/09/2023	ND	2.18	109	2.00	6.60		
Ethylbenzene*	<0.050	0.050	05/09/2023	ND	2.12	106	2.00	6.02		
Total Xylenes*	<0.150	0.150	05/09/2023	ND	6.43	107	6.00	5.35		
Total BTEx	<0.300	0.300	05/09/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	05/09/2023	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/08/2023	ND	183	91.3	200	1.12	
DRO >C10-C28*	102	10.0	05/08/2023	ND	185	92.6	200	1.42	
EXT DRO >C28-C36	19.4	10.0	05/08/2023	ND					

Surrogate: 1-Chlorooctane 75.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.0 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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Notes and Definitions

- S-06            The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- 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 "C. D. Keene".

Celey D. Keene, Lab Director/Quality Manager



Page 10 of 10





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October 02, 2023

DAN DUNKELBERG

TRINITY OILFIELD SERVICES & RENTALS, LLC

P. O. BOX 2587

HOBBS, NM 88241

RE: SECTION 27 SWD TRANSFER LINE

Enclosed are the results of analyses for samples received by the laboratory on 09/27/23 16:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

Celey D. Keene

Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	09/27/2023	Sampling Date:	09/21/2023
Reported:	10/02/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS- LEA CO.		

**Sample ID: CF-001.0-01.5-P (H235277-01)**

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	09/30/2023	ND	1.82	91.2	2.00	7.75	
Toluene*	<0.050	0.050	09/30/2023	ND	1.93	96.3	2.00	6.69	
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.04	102	2.00	6.28	
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.06	101	6.00	6.94	
Total BTEX	<0.300	0.300	09/30/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	09/29/2023	ND	448	112	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	09/28/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	69.4	10.0	09/28/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	20.3	10.0	09/28/2023	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 09/27/2023  
 Reported: 10/02/2023  
 Project Name: SECTION 27 SWD TRANSFER LINE  
 Project Number: NONE GIVEN  
 Project Location: CROSS TIMBERS- LEA CO.

Sampling Date: 09/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: CF-002.0-01.5-P (H235277-02)**

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	09/30/2023	ND	1.82	91.2	2.00	7.75		
Toluene*	<0.050	0.050	09/30/2023	ND	1.93	96.3	2.00	6.69		
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.04	102	2.00	6.28		
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.06	101	6.00	6.94		
Total BTEX	<0.300	0.300	09/30/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	09/29/2023	ND	448	112	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	09/28/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	15.1	10.0	09/28/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	<10.0	10.0	09/28/2023	ND					

Surrogate: 1-Chlorooctane 74.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 86.4 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 09/27/2023  
 Reported: 10/02/2023  
 Project Name: SECTION 27 SWD TRANSFER LINE  
 Project Number: NONE GIVEN  
 Project Location: CROSS TIMBERS- LEA CO.

Sampling Date: 09/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: CF-003.0-05.0-P (H235277-03)**

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	09/30/2023	ND	1.82	91.2	2.00	7.75		
Toluene*	<0.050	0.050	09/30/2023	ND	1.93	96.3	2.00	6.69		
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.04	102	2.00	6.28		
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.06	101	6.00	6.94		
Total BTEX	<0.300	0.300	09/30/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 124 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	09/29/2023	ND	448	112	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	09/28/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	1850	10.0	09/28/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	503	10.0	09/28/2023	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 120 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 09/27/2023  
 Reported: 10/02/2023  
 Project Name: SECTION 27 SWD TRANSFER LINE  
 Project Number: NONE GIVEN  
 Project Location: CROSS TIMBERS- LEA CO.

Sampling Date: 09/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: CF-004.0-08.0-P (H235277-04)**

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	09/30/2023	ND	1.82	91.2	2.00	7.75		
Toluene*	<0.050	0.050	09/30/2023	ND	1.93	96.3	2.00	6.69		
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.04	102	2.00	6.28		
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.06	101	6.00	6.94		
Total BTEX	<0.300	0.300	09/30/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/29/2023	ND	448	112	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	09/28/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	14.3	10.0	09/28/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	29.7	10.0	09/28/2023	ND					

Surrogate: 1-Chlorooctane 79.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 88.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 09/27/2023  
 Reported: 10/02/2023  
 Project Name: SECTION 27 SWD TRANSFER LINE  
 Project Number: NONE GIVEN  
 Project Location: CROSS TIMBERS- LEA CO.

Sampling Date: 09/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: CF-005.0-08.0-P (H235277-05)**

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	09/30/2023	ND	1.82	91.2	2.00	7.75		
Toluene*	<0.050	0.050	09/30/2023	ND	1.93	96.3	2.00	6.69		
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.04	102	2.00	6.28		
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.06	101	6.00	6.94		
Total BTEX	<0.300	0.300	09/30/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	09/29/2023	ND	448	112	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	09/28/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	11.2	10.0	09/28/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	<10.0	10.0	09/28/2023	ND					

Surrogate: 1-Chlorooctane 108 % 48.2-134

Surrogate: 1-Chlorooctadecane 121 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	09/27/2023	Sampling Date:	09/21/2023
Reported:	10/02/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	CROSS TIMBERS- LEA CO.		

**Sample ID: CF-006.0-08.0-P (H235277-06)**

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	09/30/2023	ND	1.88	94.0	2.00	1.20		
Toluene*	<0.050	0.050	09/30/2023	ND	1.97	98.5	2.00	1.08		
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.07	103	2.00	2.72		
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.11	102	6.00	3.79		
Total BTEX	<0.300	0.300	09/30/2023	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/29/2023	ND	448	112	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	09/28/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	<10.0	10.0	09/28/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	<10.0	10.0	09/28/2023	ND					

Surrogate: 1-Chlorooctane 80.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.1 % 49.1-148

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:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 09/27/2023  
 Reported: 10/02/2023  
 Project Name: SECTION 27 SWD TRANSFER LINE  
 Project Number: NONE GIVEN  
 Project Location: CROSS TIMBERS- LEA CO.

Sampling Date: 09/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: CW-001.0-04.0-P (H235277-07)**

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	09/30/2023	ND	1.88	94.0	2.00	1.20	
Toluene*	<0.050	0.050	09/30/2023	ND	1.97	98.5	2.00	1.08	
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.07	103	2.00	2.72	
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.11	102	6.00	3.79	
Total BTEX	<0.300	0.300	09/30/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	09/29/2023	ND	448	112	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	09/29/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	<10.0	10.0	09/29/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	<10.0	10.0	09/29/2023	ND					

Surrogate: 1-Chlorooctane 80.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.2 % 49.1-148

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:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received: 09/27/2023  
 Reported: 10/02/2023  
 Project Name: SECTION 27 SWD TRANSFER LINE  
 Project Number: NONE GIVEN  
 Project Location: CROSS TIMBERS- LEA CO.

Sampling Date: 09/21/2023  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Shalyn Rodriguez

**Sample ID: CW-002.0-01.0-P (H235277-08)**

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	09/30/2023	ND	1.88	94.0	2.00	1.20	
Toluene*	<0.050	0.050	09/30/2023	ND	1.97	98.5	2.00	1.08	
Ethylbenzene*	<0.050	0.050	09/30/2023	ND	2.07	103	2.00	2.72	
Total Xylenes*	<0.150	0.150	09/30/2023	ND	6.11	102	6.00	3.79	
Total BTEX	<0.300	0.300	09/30/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/29/2023	ND	448	112	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	09/29/2023	ND	181	90.7	200	0.838	
DRO >C10-C28*	<10.0	10.0	09/29/2023	ND	186	92.9	200	0.644	
EXT DRO >C28-C36	<10.0	10.0	09/29/2023	ND					

Surrogate: 1-Chlorooctane 83.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 94.7 % 49.1-148

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





---

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---

### Notes and Definitions

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

---

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

---

Celey D. Keene, Lab Director/Quality Manager



Page 11 of 11





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

October 20, 2023

DAN DUNKELBERG

TRINITY OILFIELD SERVICES & RENTALS, LLC

P. O. BOX 2587

HOBBS, NM 88241

RE: SECTION 27 SWD TRANSFER LINE

Enclosed are the results of analyses for samples received by the laboratory on 10/17/23 10:21.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-22-15. 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 style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager





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

**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	10/17/2023	Sampling Date:	10/12/2023
Reported:	10/20/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Dionica Hinojos
Project Location:	CROSS TIMBERS- LEA CO.		

**Sample ID: DV-001.0-08.0-P (H235644-01)**

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	10/18/2023	ND	158	79.2	200	2.62	
DRO >C10-C28*	<10.0	10.0	10/18/2023	ND	180	90.2	200	0.289	
EXT DRO >C28-C36	<10.0	10.0	10/18/2023	ND					

Surrogate: 1-Chlorooctane 83.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.5 % 49.1-148

**Sample ID: DH-004.1-01.0-P (H235644-02)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/18/2023	ND	2.04	102	2.00	2.38	
Toluene*	<0.050	0.050	10/18/2023	ND	2.15	107	2.00	3.80	
Ethylbenzene*	<0.050	0.050	10/18/2023	ND	2.16	108	2.00	5.18	
Total Xylenes*	<0.150	0.150	10/18/2023	ND	6.47	108	6.00	6.22	
Total BTX	<0.300	0.300	10/18/2023	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.7 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	10/18/2023	ND	416	104	400	0.00	
TPH 8015M		mg/kg		Analyzed By: MS					

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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**Analytical Results For:**

TRINITY OILFIELD SERVICES & RENTALS, LLC  
 DAN DUNKELBERG  
 P. O. BOX 2587  
 HOBBS NM, 88241  
 Fax To: NONE

Received:	10/17/2023	Sampling Date:	10/12/2023
Reported:	10/20/2023	Sampling Type:	Soil
Project Name:	SECTION 27 SWD TRANSFER LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Dionica Hinojos
Project Location:	CROSS TIMBERS- LEA CO.		

**Sample ID: DH-004.1-01.0-P (H235644-02)**

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	10/18/2023	ND	158	79.2	200	2.62	
DRO >C10-C28*	<10.0	10.0	10/18/2023	ND	180	90.2	200	0.289	
EXT DRO >C28-C36	<10.0	10.0	10/18/2023	ND					
Surrogate: 1-Chlorooctane	89.9 %	48.2-134							
Surrogate: 1-Chlorooctadecane	97.3 %	49.1-148							

**Sample ID: CF-003.0-06.0-P (H235644-03)**

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	10/18/2023	ND	158	79.2	200	2.62	
DRO >C10-C28*	<10.0	10.0	10/18/2023	ND	180	90.2	200	0.289	
EXT DRO >C28-C36	<10.0	10.0	10/18/2023	ND					
Surrogate: 1-Chlorooctane	87.7 %	48.2-134							
Surrogate: 1-Chlorooctadecane	94.7 %	49.1-148							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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Notes and Definitions

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

Cardinal Laboratories

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

Celey D. Keene, Lab Director/Quality Manager



Page 5 of 5



TICKET No.

681069

10288

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>		DATE: <u>10-5-23</u>
LEASE NAME: <u>WD Transfer Line sec 27</u>		TIME: <u>10:00</u> AM/PM
RIG NAME & NUMBER:		VEHICLE NO: <u>52823</u>
TRANSPORTER COMPANY: <u>Tunity</u>		PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Buehl</u>		PHONE: <u>575-513-8156</u>

CHARGE TO: Cross Timbers

TYPE OF MATERIAL	<input type="checkbox"/> Tank Bottoms	<input type="checkbox"/> Drilling Fluids	<input type="checkbox"/> Rinsate	<input type="checkbox"/> BS&W Content:
	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Contaminated Soil	<input type="checkbox"/> Jet Out	
Description: <u>DD</u>				

VOLUME OF MATERIAL ☐ BBLs. \_\_\_\_\_ : ☒ YARD 20 : ☐ \_\_\_\_\_

RRC or API # \_\_\_\_\_ C-133# Nm

STICKERS, CODES, NUMBERS, ETC.	AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HEREWITH IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. § 6901, et seq., THE NM HEALTH AND SAF. CODE § 361.001 et seq., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.
	ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET. TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

**THIS WILL CERTIFY** that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER: DIEBOLT  
(SIGNATURE)

FACILITY REPRESENTATIVE: Mia  
(SIGNATURE)

White - Sundance      Canary - Sundance Acct #1      Pink - Transporter





# SUNDANCE SERVICES WEST, INC.

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No. 681074

10889

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>	DATE: <u>10-5-23</u>
LEASE NAME: <u>SWD Transfer line sec 27</u>	TIME: <u>10:16</u> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <u>508037</u>
TRANSPORTER COMPANY: <u>Trinity</u>	PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Bennett</u>	PHONE: <u>575-513-8156</u>

CHARGE TO: Cross Timbers

TYPE OF MATERIAL

<input type="checkbox"/> Tank Bottoms	<input type="checkbox"/> Drilling Fluids	<input type="checkbox"/> Rinsate	<input type="checkbox"/> BS&W Content:
<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Contaminated Soil	<input type="checkbox"/> Jet Out	

Description: 00

VOLUME OF MATERIAL

<input type="checkbox"/> BBLs. _____ :	<input checked="" type="checkbox"/> YARD <u>20</u> :	<input type="checkbox"/> _____ :
----------------------------------------	------------------------------------------------------	----------------------------------

RRC or API #

C-133#

Nm

## STICKERS, CODES, NUMBERS, ETC.

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HERewith IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. § 6901, et seq., THE NM HEALTH AND SAF. CODE § 361.001 et seq., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET. TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

**THIS WILL CERTIFY** that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER: Joanna Vena

(SIGNATURE)

FACILITY REPRESENTATIVE: Mica

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter





## SUNDANCE SERVICES WEST, INC.

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No.

681080

109101

LEASE OPERATOR/SHIPPER/COMPANY:

Cross Timbers

DATE:

10-5-23

LEASE NAME:

SUD transfer line sec 27

TIME:

11:15 AM/PM

RIG NAME &amp; NUMBER:

VEHICLE NO:

508038

TRANSPORTER COMPANY:

Timidy

PHONE:

GENERATOR COMPANY MAN'S NAME:

Kevin Bennett

PHONE:

CHARGE TO:

Cross Timbers

TYPE OF MATERIAL

☐ Tank Bottoms☐ Drilling Fluids☐ Rinsate☐ BS&W Content:☐ Solids☒ Contaminated Soil☐ Jet Out

Description:

OD

VOLUME OF MATERIAL

☐ BBLs.☒ YARD

20

☐

RRC or API #

C-133#

Nm

## STICKERS, CODES, NUMBERS, ETC.

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HERewith IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. § 6901, et seq., THE NM HEALTH AND SAF. CODE § 361.001 et seq., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET. TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

**THIS WILL CERTIFY** that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER:

(SIGNATURE)

FACILITY REPRESENTATIVE:

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No.

681098

10888

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>	DATE: <u>10-5-23</u>
LEASE NAME: <u>SUD Transfer line sec. 27</u>	TIME: <u>2:07</u> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <u>50803</u>
TRANSPORTER COMPANY: <u>Trinity</u>	PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Bennett</u>	PHONE:
CHARGE TO: <u>Cross Timbers</u>	

TYPE OF MATERIAL	<input type="checkbox"/> Tank Bottoms	<input type="checkbox"/> Drilling Fluids	<input type="checkbox"/> Rinsate	<input type="checkbox"/> BS&W Content:
	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Contaminated Soil	<input type="checkbox"/> Jet Out	
Description: <u>DD</u>				
VOLUME OF MATERIAL	<input type="checkbox"/> BBLs.	:	<input checked="" type="checkbox"/> YARD <u>20</u>	:
RRC or API #		C-133# <u>Nm</u>		

## STICKERS, CODES, NUMBERS, ETC.

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HEREWITH IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. § 6901, et seq., THE NM HEALTH AND SAF. CODE § 361.001 et seq., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET. TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

**THIS WILL CERTIFY** that the above Transporter loaded the material represented by this Transporter Statement at the above described location, and that it was tendered by the above described shipper. This will certify that no additional materials were added to this load, and that the material was delivered without incident.

DRIVER: Diego

(SIGNATURE)

FACILITY REPRESENTATIVE: Mia

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

**TICKET No. 681100**

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>	DATE: <u>10-5-23</u>
LEASE NAME: <u>SWD Transfer line sec 27</u>	TIME: <u>2:19</u> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <u>52837</u>
TRANSPORTER COMPANY: <u>Trinity</u>	PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Benett</u>	PHONE:

**CHARGE TO:** Cross Timbers**TYPE OF MATERIAL**

☐ Tank Bottoms    ☒ Drilling Fluids    ☐ Rinsate    ☐ BS&W Content:  
☐ Solids    ☒ Contaminated Soil    ☐ Jet Out    \_\_\_\_\_

Description: \_\_\_\_\_

**VOLUME OF MATERIAL**

☐ BBLs. \_\_\_\_\_ :    ☒ YARD 20 :    ☐ \_\_\_\_\_

RRC or API #

C-133#

**STICKERS, CODES, NUMBERS, ETC.**

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ALSO AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, TRANSPORTER REPRESENTS AND WARRANTS THAT ONLY THE MATERIAL DELIVERED BY OPERATOR/SHIPPER TO TRANSPORTER IS NOW DELIVERED BY TRANSPORTER TO SUNDANCE SERVICES, INC.'S FACILITY FOR DISPOSAL.

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DRIVER: \_\_\_\_\_

(SIGNATURE)

FACILITY REPRESENTATIVE: \_\_\_\_\_

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No. 679102

109101

LEASE OPERATOR/SHIPPER/COMPANY: <i>Cross Timbers</i>	DATE: <i>10-5-23</i>
LEASE NAME: <i>SLP Transfer line Sec 27</i>	TIME: <i>2:36</i> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <i>508038</i>
TRANSPORTER COMPANY: <i>Trinity</i>	PHONE:
GENERATOR COMPANY MAN'S NAME: <i>Kevin Bennett</i>	PHONE:

CHARGE TO: *Cross Timbers*

TYPE OF MATERIAL

<input type="checkbox"/> Tank Bottoms	<input type="checkbox"/> Drilling Fluids	<input type="checkbox"/> Rinsate	<input type="checkbox"/> BS&W Content:
<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Contaminated Soil	<input type="checkbox"/> Jet Out	

Description: *OD*

VOLUME OF MATERIAL

<input type="checkbox"/> BBLs. _____:	<input checked="" type="checkbox"/> YARD <i>22</i> _____:	<input type="checkbox"/> _____
---------------------------------------	-----------------------------------------------------------	--------------------------------

RRC or API #

C-133# *Nm***STICKERS, CODES, NUMBERS, ETC.**

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HERewith IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. § 6901, et seq., THE NM HEALTH AND SAF. CODE § 361.001 et seq., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

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DRIVER: \_\_\_\_\_

(SIGNATURE)

FACILITY REPRESENTATIVE: \_\_\_\_\_

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter





P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No.

075110  
10288

LEASE OPERATOR/SHIPPER/COMPANY:

Cross Timbers

DATE:

10-5-23

LEASE NAME:

SLD Transfer line sec 27

TIME:

4:40 AM/PM

RIG NAME &amp; NUMBER:

VEHICLE NO:

508036

TRANSPORTER COMPANY:

Trinity

PHONE:

GENERATOR COMPANY MAN'S NAME:

Kevin Bennett

PHONE:

CHARGE TO:

Cross Timbers

TYPE OF  
MATERIAL☐ Tank Bottoms☐ Drilling Fluids☐ Rinsate☐ BS&W Content:☐ Solids☒ Contaminated Soil☐ Jet Out

Description:

SD

VOLUME OF  
MATERIAL☐ BBLs.

:

☒ YARD

20

:

☐ \_\_\_\_\_

RRC or API #

C-133#

Nm

## STICKERS, CODES, NUMBERS, ETC.

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DRIVER:

(SIGNATURE)

FACILITY REPRESENTATIVE:

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

**TICKET No. 679121**

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>	DATE: <u>10-5-23</u>
LEASE NAME: <u>SUD transfer line sec 27</u>	TIME: <u>4:50</u> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <u>508037</u>
TRANSPORTER COMPANY: <u>Trinity</u>	PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Benett</u>	PHONE:

**CHARGE TO:** Cross Timbers**TYPE OF MATERIAL**

☐ Tank Bottoms    ☐ Drilling Fluids    ☐ Rinsate    ☐ BS&W Content:  
☐ Solids    ☒ Contaminated Soil    ☐ Jet Out

Description: SD**VOLUME OF MATERIAL**

☐ BBLs. \_\_\_\_\_ :    ☒ YARD 20 :    ☐ \_\_\_\_\_

RRC or API #

C-133# Nm**STICKERS, CODES, NUMBERS, ETC.**

AS A CONDITION TO SUNDANCE SERVICES, INC.'S ACCEPTANCE OF THE MATERIALS SHIPPED WITH THIS JOB TICKET, OPERATOR/SHIPPER REPRESENTS AND WARRANTS THAT THE WASTE MATERIAL SHIPPED HEREWITH IS MATERIAL EXEMPT FROM THE RESOURCE, CONSERVATION AND RECOVERY ACT OF 1976, AS AMENDED FROM TIME TO TIME, 40 U.S.C. § 6901, et seq., THE NM HEALTH AND SAF. CODE § 361.001 et seq., AND REGULATIONS RELATED THERETO, BY VIRTUE OF THE EXEMPTION AFFORDED DRILLING FLUIDS, PRODUCED WATERS, AND OTHER WASTE ASSOCIATED WITH THE EXPLORATION, DEVELOPMENT OR PRODUCTION OF CRUDE OIL OR NATURAL GAS OR GEOTHERMAL ENERGY.

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DRIVER: Joanna Vega

(SIGNATURE)

FACILITY REPRESENTATIVE: Ulia

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No. 679124

10901

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>	DATE: <u>10-5-23</u>
LEASE NAME: <u>SPD Transfer Line Sec 27</u>	TIME: <u>5:06</u> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <u>528038</u>
TRANSPORTER COMPANY: <u>Timely</u>	PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Bennett</u>	PHONE:

CHARGE TO: Cross Timbers

TYPE OF MATERIAL      ☐ Tank Bottoms      ☐ Drilling Fluids      ☐ Rinsate      ☐ BS&W Content:  
☐ Solids      ☒ Contaminated Soil      ☐ Jet Out      \_\_\_\_\_

Description: \_\_\_\_\_

VOLUME OF MATERIAL      ☐ BBLs. \_\_\_\_\_ :      ☐ YARD 20 :      ☐ \_\_\_\_\_

RRC or API #

C-133#

**STICKERS, CODES, NUMBERS, ETC.**

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DRIVER: \_\_\_\_\_  
(SIGNATURE)FACILITY REPRESENTATIVE: \_\_\_\_\_  
(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No. **679155**  
108911

LEASE OPERATOR/SHIPPER/COMPANY: <i>Cross Timbers</i>	DATE: <i>10-6-23</i>
LEASE NAME: <i>SWD Transfer line Sec 27</i>	TIME: <i>10:25</i> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <i>508038</i>
TRANSPORTER COMPANY: <i>Turnly</i>	PHONE:
GENERATOR COMPANY MAN'S NAME: <i>Kevin Bennett</i>	PHONE: <i>575-513-8156</i>

CHARGE TO: *Cross Timbers***TYPE OF MATERIAL**

☐ Tank Bottoms    ☐ Drilling Fluids    ☐ Rinsate    ☐ BS&W Content:  
☐ Solids    ☒ Contaminated Soil    ☐ Jet Out

Description: *OD***VOLUME OF MATERIAL**

☐ BBLs. \_\_\_\_\_ :    ☒ YARD *20* :    ☐ \_\_\_\_\_

RRC or API #

C-133#  
*Nm***STICKERS, CODES, NUMBERS, ETC.**

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DRIVER: *[Signature]*

(SIGNATURE)

FACILITY REPRESENTATIVE: *[Signature]*

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No. 679157  
10893

LEASE OPERATOR/SHIPPER/COMPANY:

Cross Timbers

DATE: 10-6-23

LEASE NAME:

SUD Transfer Line Sec 27

TIME: 10:30 AM/PM

RIG NAME &amp; NUMBER:

VEHICLE NO: 100070

TRANSPORTER COMPANY:

Trinity

PHONE:

GENERATOR COMPANY MAN'S NAME:

Kevin Bennett

PHONE:

CHARGE TO:

Cross Timbers

**TYPE OF MATERIAL**☐ Tank Bottoms☐ Drilling Fluids☐ Rinsate☐ BS&W Content:☐ Solids☒ Contaminated Soil☐ Jet Out

Description:

OD

**VOLUME OF MATERIAL**☐ BBLs. \_\_\_\_\_ :☒ YARD 20 \_\_\_\_\_ :☐ \_\_\_\_\_

RRC or API #

C-133#

Nm

**STICKERS, CODES, NUMBERS, ETC.**

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DRIVER:

(SIGNATURE)

FACILITY REPRESENTATIVE:

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

TICKET No. 679156

10890

LEASE OPERATOR/SHIPPER/COMPANY: <u>Cross Timbers</u>	DATE: <u>10-6-23</u>
LEASE NAME: <u>SJD Transfer line sec 27</u>	TIME: <u>10:24</u> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <u>52032</u>
TRANSPORTER COMPANY: <u>Trinity</u>	PHONE:
GENERATOR COMPANY MAN'S NAME: <u>Kevin Bennett</u>	PHONE:

**CHARGE TO:** Cross Timbers**TYPE OF MATERIAL**

☐ Tank Bottoms    ☐ Drilling Fluids    ☐ Rinsate    ☐ BS&W Content:  
☐ Solids    ☒ Contaminated Soil    ☐ Jet Out

Description: 00**VOLUME OF MATERIAL**

☐ BBLs. \_\_\_\_\_ : ☒ YARD 20 : ☐ \_\_\_\_\_

RRC or API #

C-133# Um**STICKERS, CODES, NUMBERS, ETC.**

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DRIVER: D. E. D. D. F.

(SIGNATURE)

FACILITY REPRESENTATIVE: Mia

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**SUNDANCE SERVICES WEST, INC.**

P.O. Box 1737 Eunice, New Mexico 88231

Business: (575) 394-2511 • Disposal: (575) 390-7842

**TICKET No. 679158**  
10297

LEASE OPERATOR/SHIPPER/COMPANY: <i>Cross Timbers</i>	DATE: <i>10-6-23</i>
LEASE NAME: <i>SDD Transfer line sec 27</i>	TIME: <i>10:35</i> AM/PM
RIG NAME & NUMBER:	VEHICLE NO: <i>502037</i>
TRANSPORTER COMPANY: <i>Trinity</i>	PHONE:
GENERATOR COMPANY MAN'S NAME: <i>Kevin Bennett</i>	PHONE:

**CHARGE TO:** *Cross Timbers***TYPE OF MATERIAL**

<input type="checkbox"/> Tank Bottoms	<input type="checkbox"/> Drilling Fluids	<input type="checkbox"/> Rinsate	<input type="checkbox"/> BS&W Content:
<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Contaminated Soil	<input type="checkbox"/> Jet Out	

Description: *DD***VOLUME OF MATERIAL**

<input type="checkbox"/> BBLs. _____ :	<input checked="" type="checkbox"/> YARD <i>20</i> :	<input type="checkbox"/> _____
----------------------------------------	------------------------------------------------------	--------------------------------

RRC or API #

**C-133#** *Um***STICKERS, CODES, NUMBERS, ETC.**

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DRIVER: *Colette Vega*

(SIGNATURE)

FACILITY REPRESENTATIVE: *Mia*

(SIGNATURE)

White - Sundance

Canary - Sundance Acct #1

Pink - Transporter



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

QUESTIONS  
  
Action 375518

QUESTIONS

Operator: CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID:	298299
	Action Number:	375518
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2310731906
Incident Name	NAPP2310731906 SECTION 27 SWD TRANSFER LINE @ 0
Incident Type	Oil Release
Incident Status	Remediation Closure Report Received

Location of Release Source	
Please answer all the questions in this group.	
Site Name	SECTION 27 SWD TRANSFER LINE
Date Release Discovered	04/13/2023
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Oil Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Equipment Failure   Flow Line - Injection   Crude Oil   Released: 5 BBL   Recovered: 4 BBL   Lost: 1 BBL.
Produced Water Released (bbls) Details	Cause: Equipment Failure   Flow Line - Injection   Produced Water   Released: 5 BBL   Recovered: 4 BBL   Lost: 1 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Not answered.



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QUESTIONS, Page 2

Action 375518

**QUESTIONS (continued)**

Operator: CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID: 298299
	Action Number: 375518
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS**

<b>Nature and Volume of Release (continued)</b>	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

**Initial Response**

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

The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	Not answered.

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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.

I hereby agree and sign off to the above statement	Name: Dan Dunkelberg Title: Consultant Email: dan@trinityoilfieldservices.com Date: 08/30/2024
----------------------------------------------------	---------------------------------------------------------------------------------------------------------



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QUESTIONS, Page 3

Action 375518

**QUESTIONS (continued)**

Operator: CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID: 298299
	Action Number: 375518
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS****Site Characterization**

Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	Direct Measurement
Did this release impact groundwater or surface water	No
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1000 (ft.) and ½ (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1000 (ft.) and ½ (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

**Remediation Plan**

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
<b>Soil Contamination Sampling:</b> (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	400
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	67040
GRO+DRO (EPA SW-846 Method 8015M)	57370
BTEX (EPA SW-846 Method 8021B or 8260B)	628
Benzene (EPA SW-846 Method 8021B or 8260B)	31.9

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

On what estimated date will the remediation commence	09/21/2023
On what date will (or did) the final sampling or liner inspection occur	09/21/2023
On what date will (or was) the remediation complete(d)	10/12/2023
What is the estimated surface area (in square feet) that will be reclaimed	1084
What is the estimated volume (in cubic yards) that will be reclaimed	260
What is the estimated surface area (in square feet) that will be remediated	1084
What is the estimated volume (in cubic yards) that will be remediated	260

These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.



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QUESTIONS, Page 4

Action 375518

**QUESTIONS (continued)**

Operator: CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID: 298299
	Action Number: 375518
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS**

<b>Remediation Plan (continued)</b>	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
<b>This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:</b>	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	Sundance Services, Inc [fKJ1600527371]
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
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.	
I hereby agree and sign off to the above statement	Name: Dan Dunkelberg Title: Consultant Email: dan@trinityoilfieldservices.com Date: 08/30/2024
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	



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Action 375518

QUESTIONS (continued)

Operator:  CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID:  298299
	Action Number:  375518
	Action Type:  [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No



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Action 375518

**QUESTIONS (continued)**

Operator: CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID:	298299
	Action Number:	375518
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS**

Sampling Event Information	
Last sampling notification (C-141N) recorded	319214
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	09/21/2023
What was the (estimated) number of samples that were to be gathered	9
What was the sampling surface area in square feet	1084

**Remediation Closure Request**

*Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.*

Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	1084
What was the total volume (cubic yards) remediated	260
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	1084
What was the total volume (in cubic yards) reclaimed	260
Summarize any additional remediation activities not included by answers (above)	NA

*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 (in .pdf format) 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.*

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.

I hereby agree and sign off to the above statement	Name: Dan Dunkelberg Title: Consultant Email: dan@trinityoilfieldservices.com Date: 08/30/2024
----------------------------------------------------	---------------------------------------------------------------------------------------------------------



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QUESTIONS, Page 7  
  
Action 375518

QUESTIONS (continued)

Operator:  CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID:  298299
	Action Number:  375518
	Action Type:  [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No



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CONDITIONS  
  
Action 375518

CONDITIONS

Operator: CROSS TIMBERS ENERGY, LLC 400 West 7th Street Fort Worth, TX 76102	OGRID: 298299
	Action Number: 375518
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
scwells	Remediation closure approved.	9/18/2024
scwells	Operator failed to provide proper Sampling Notification pursuant to 19.15.29.12.D.(1).(a) NMAC. Failure to provide proper sampling notice is a compliance issue and OCD may pursue compliance actions pursuant to 19.15.5 NMAC. Operator shall ensure future compliance with 19.15.29.12.D.(1).(a) NMAC	9/18/2024