
May 5, 2026

EMNRD – Oil Conservation Division
506 W. Texas
Artesia, New Mexico 88210

SUBJECT: Liner Inspection and Closure Report for Muskie 23 CTB 5 – March 20, 2026 Site Visit

Incident IDs: nAPP2603644264
Facility ID (Name): fAPP2317134046 (MUSKIE 23 CTB 5)
Facility Location: Unit A of Section 23, Township 26 South, Range 34 East, New Mexico
Facility GPS Coordinates: 32.033148, -103.435555
Lea County, New Mexico

Introduction

KLJ Engineering (KLJ) has prepared this report on behalf of Devon Energy Production Company, LP (Devon) to detail the recent liner inspection conducted at Muskie 23 CTB 5 (Site) on March 20, 2026. The inspection followed the release of produced water that occurred on February 4, 2026 (Incident ID nAPP2603644264).

Site Information and Background

The Site is located approximately 14.27 miles southwest of Jal, New Mexico, on Bureau of Land Management (BLM) property. The Site lies within Unit A, Section 23, Township 26 South, Range 34 East, in Lea County. KLJ conducted a liner inspection and associated site characterization in accordance with 19.15.29.11 and 19.15.29.12 of the New Mexico Administrative Code (NMAC) to assess the integrity of the containment system and evaluate any potential environmental impacts resulting from a release.

Release Descriptions and Immediate Response

On February 4, 2026, a Devon lease operator discovered a valve leaking within the secondary containment that houses the heater treaters and separators, resulting in the release of approximately 56 barrels (bbls) of produced water. On February 5, 2026, Devon Energy submitted the initial Notice of Release (NOR) to the New Mexico Energy, Minerals, and Natural Resources Department – Oil Conservation Division (NMOCD) via the Operator’s Electronic Permitting and Payment Portal.

The February 4, 2026, release exceeded 25 bbls and was classified as a *major release* under 19.15.29.7(A)(1) NMAC, requiring enhanced notification procedures. In compliance with 19.15.29.8(A)(1) NMAC, Devon provided verbal and email notification to the NMOCD Environmental Bureau Chief and the appropriate Division District Office within 24 hours of discovery. A Form C-141 for the incident was submitted on February 10, 2026, in accordance with 19.15.29.9(A)(1) and 19.15.29.10(A)(1)(2) NMAC. The Form C-141 confirmed prior notifications and provided updated release details, fulfilling major release reporting requirements.

Site Characterization Summary

The Site lies within Qe/Qp – Intermixed sands with local peat deposits, including Quaternary eolian sand with local peat deposits and fine to medium wind-blown sands forming stabilized sheets and ridges. Local peat occurs in depressions with poor drainage and represents eolian and intermittent wetland deposition on piedmont slopes. Terrain for the Site and immediate surrounding area includes plains, uplands, dunes,

interdunal areas, and fan piedmonts at elevations ranging from 2,800 to 5,000 feet above mean sea level (amsl). Parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock, with 8 to 13 inches of average annual precipitation. Soil within the Site tends to be well-drained, with negligible runoff potential and low water-holding capacity.

The USDA – Web Soil Survey (WSS) identifies the predominant soil type at the Site as the Pyote and Maljamar fine sands that is moderately deep to very deep, with surface textures ranging from loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam. Subsurface consists of loamy fine sand, coarse sandy loam, fine sandy loam or loam that averages less than 18 percent clay and less than 15 percent carbonates. Substratum includes a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and less than 40 percent calcium carbonate.

Vegetation reflects black grama, dropseeds, and bluestems, with scattered occurrences of shinney oak and sage. Ground cover consists of perennial and annual forbs, grasses, and bare ground, with composition varying based on precipitation. Declines in black grama can result in a transition toward a grass/shrub or shrub-dominated state, often featuring honey mesquite, snakeweed, sand sage, and shinnery oak. These changes are influenced by factors such as heavy grazing, drought, erosion, bare patches, and historical fire suppression, which promote shrub encroachment and reduce grass cover, leading to increased erosion potential and a competitive advantage for shrubs over grasses.

No surface water features were identified within 300 feet of the Site. The nearest significant watercourse and wetland is 0.9 miles northwest; the closest playa is 1.66 miles west. These distances comply with the requirements of 19.15.29.12(C)(4) NMAC.

Per the New Mexico Office of the State Engineer (NMOSE) Points of Diversion (POD) Map, the nearest POD used to reference Depth to Groundwater (DTGW) is located 0.18 miles southwest on an adjacent well pad (C-04856-POD1). The POD is identified as a temporary borehole/monitoring well used to determine DTGW. The well record indicates that the temporary borehole was drilled to a depth of 105 ft below ground surface (bgs), and no groundwater was encountered. The nearest water source, a domestic well used for stock watering purposes, C-02295, is located 5.11 miles northwest of the Site.

Karst potential for the Site is identified as low, with the nearest area of medium karst potential located 4.98 miles to the northwest. The Site is in a FEMA flood hazard area identified as Zone D (undetermined hazard); the nearest identified FEMA flood hazard area, classified as Zone AE, is 14.6 miles to the northeast.

Additional information detailing the results of the Site characterization findings can be found in **Appendix B**.

Closure Criteria

Table 1 summarizes key Site and incident information relevant to closure evaluation, as required under 19.15.29.12 NMAC. This includes details such as release source, location, containment status, and site-specific features that may influence closure requirements. While contamination thresholds and applicable concentration limits are not listed in this table, the information provided supports regulatory assessment of whether the release meets criteria for closure. In accordance with NMAC 19.15.29.11(A)(5)(b), if the release occurred within lined, impermeable secondary containment with no evidence of escape, it may qualify for reduced remediation requirements or a No Further Action (NFA) determination.

Table 1: Release Information and Closure Criteria Limits			
Depth to Ground Water Determination: > 100 feet bgs			
Site Name	Muskie 23 CTB 5	Company	Devon Energy Production Company, LP
Facility ID	fAPP2317134046	PLSS GPS	A-23-26S-34E 32.033148, -103.4355555
Lease ID	NMNM105858782	Land Status	BLM (Federal)
Incident ID(s)	nAPP2603644264	Date Of Release(s)	2/4/2026
Source of Release	Leaking valve	Volume Released/Recovered	56 bbls/ 56 bbls pw
Specific Features	DTGW POD within 0.5-mile radius; Low karst potential; No surface water within proximity; FEMA Zone D		

Liner Inspection Activities

For incident nAPP2603644264, a notification of inspection was submitted to Devon via email on March 17, 2026, with official notification submitted through the Operator's Electronic Permitting and Payment Portal on the same date, in accordance with 19.15.29.11(A)(5)(a)(iii) NMAC. A copy of the notification is included with **Appendix C**.

During the visit on March 20, 2026, KLJ personnel conducted a visual inspection of the secondary containment to verify liner integrity. Observations included checks for perforations, tears, cuts, or weathering that could compromise containment performance. The liner was confirmed to be intact, with no observed integrity issues or conditions requiring repair or replacement. Photographic documentation is included in the Liner Inspection Field Notes & Photolog Report (**Appendix A**).

Conclusion


Based on the findings of the liner inspection, KLJ concludes that liner integrity is adequate to contain fluids and there are no further actions required in relation to incident nAPP2603644264.

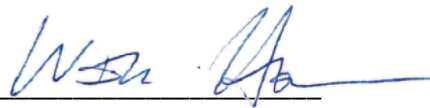
Based on the site assessment and activities conducted, Devon respectfully requests closure of incident nAPP2603644264 with a No Further Action (NFA) determination.

Submitted and prepared by:
KLJ Engineering

Written By
Name: Monica Peppin
Title: Environmental Specialist II

Reviewed By
Name: Will Harmon, P.G.
Title: Environmental Project Manager

Signature: 

Signature: 

Included Appendices

Appendix A – LINER INSPECTION FIELD NOTES & PHOTOLOG REPORT

Appendix B – CLOSURE CRITERIA RESEARCH

Appendix C – CORRESPONDENCE

APPENDIX A

LINER INSPECTION FIELD NOTES & PHOTOLOG REPORT

Environmental Liner Inspection Field Notes & Photolog Report



Site & Incident Information

Client:	Devon Energy	Date:	March 20, 2026
Site:	Muskie 23 CTB 5	Arrival Time:	10:39 AM
Incident ID:	nAPP2603644264	County:	Lea
GPS:	32.033148, -103.435555	Lease ID:	NMNM100568
Land Status:	BLM	Facility ID:	fAPP2317134046

Observations and Field Notes

KLJ Field Notes

PROJECT Muskie 23 CTB 5

SHEET NO. _____ OF _____


CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

32.033148, -103.435555 3/20/26

- Travel to site, complete safety paperwork and bump test 4 gas monitor
- Check site for any hazards
- Begin walk around of site and inspect liner for any signs of breach
- Liner is clean and no signs of rips, tears, cuts, weathering, or indication of a fluid release outside of containment.
- Photos of ~~site~~ containment taken at each cardinal direction and in between equipment or congested areas.
- Liner integrity is confirmed and passes inspection
- No additional work needed.
- Containment is capable of withstanding released fluids from breaching onto pad surfaces and migrating to undisturbed areas.

- 3/20/2026

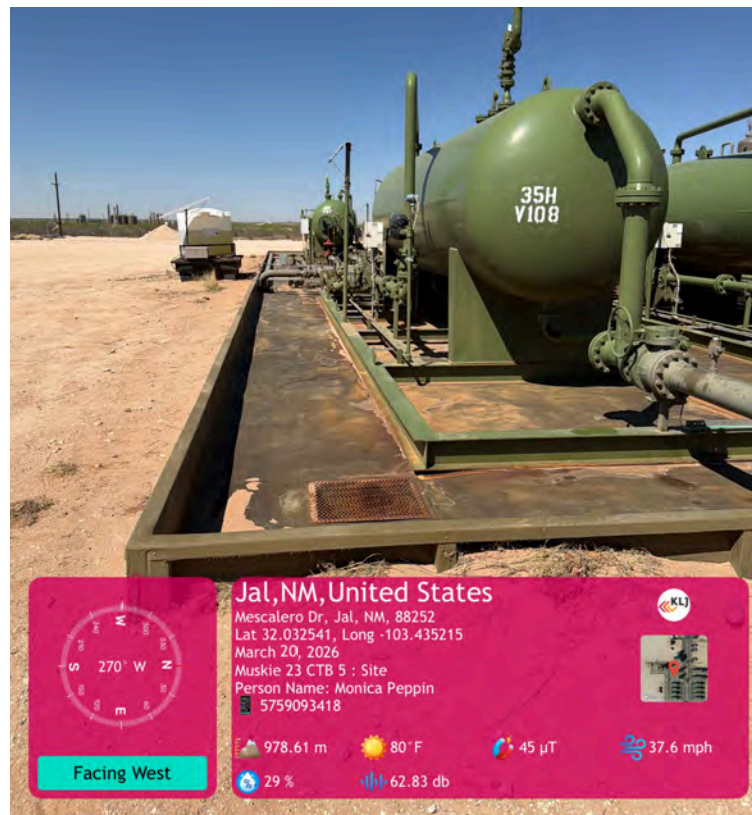
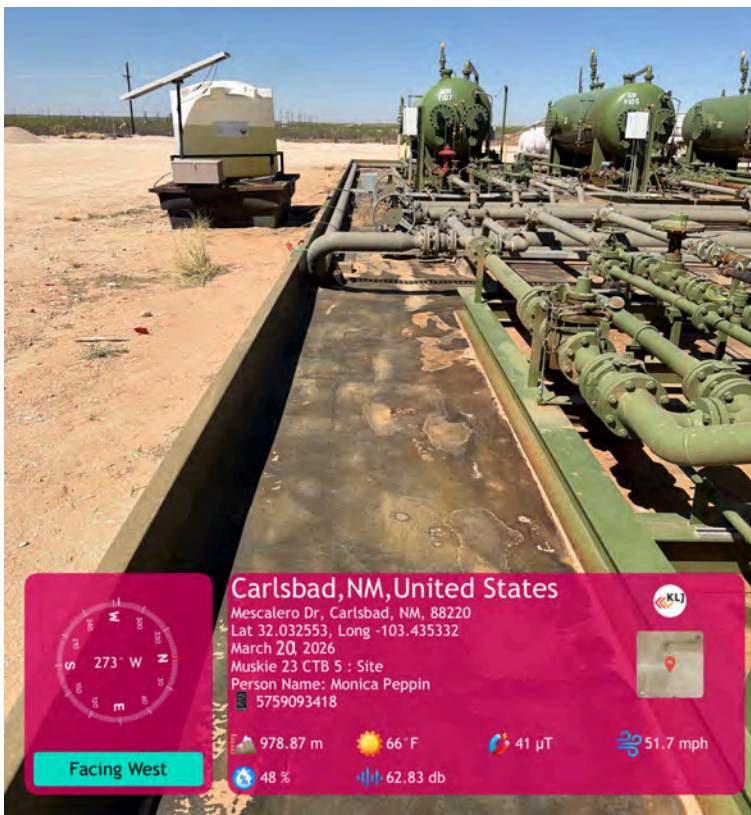



Jal, NM, United States

Mescalero Dr., Jal, NM, 88252
 Lat 32.034366, Long -103.436724
 March 20, 2026
 Muskie 23 CTB 5 - Site
 Person Name: Monica Peppin
 5759093418

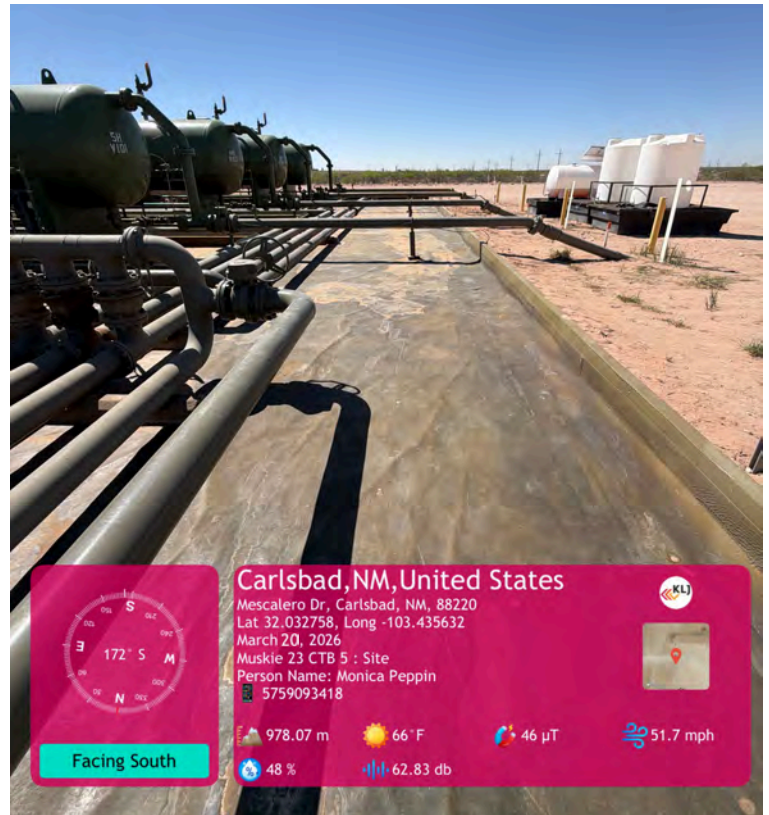
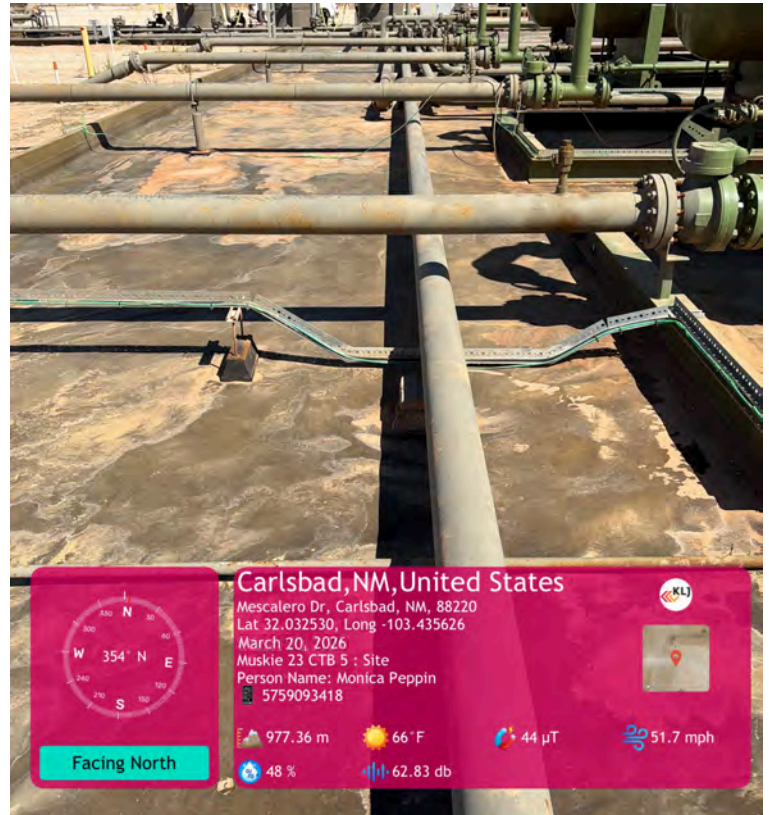


Photolog



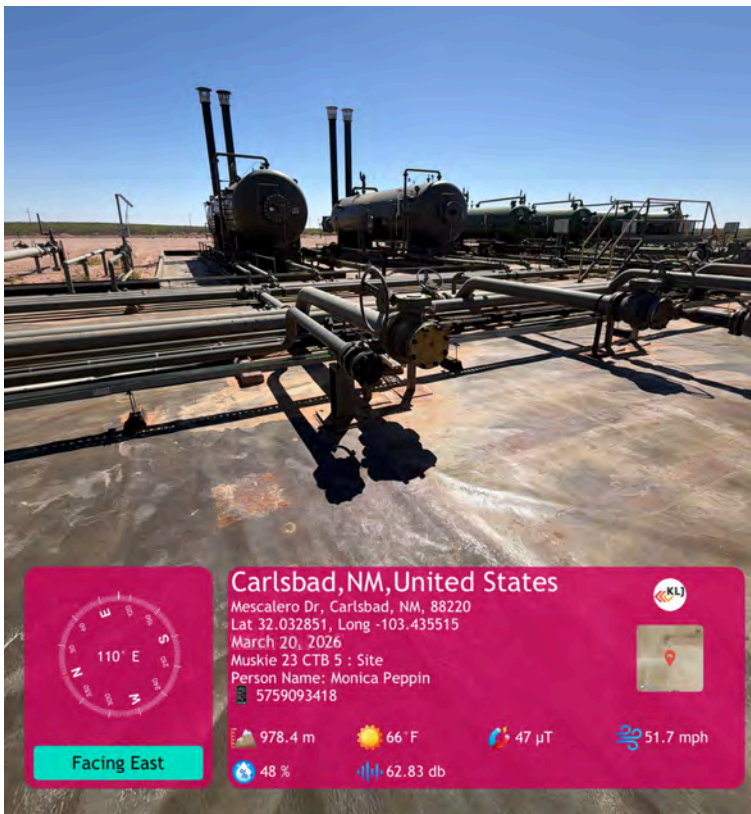
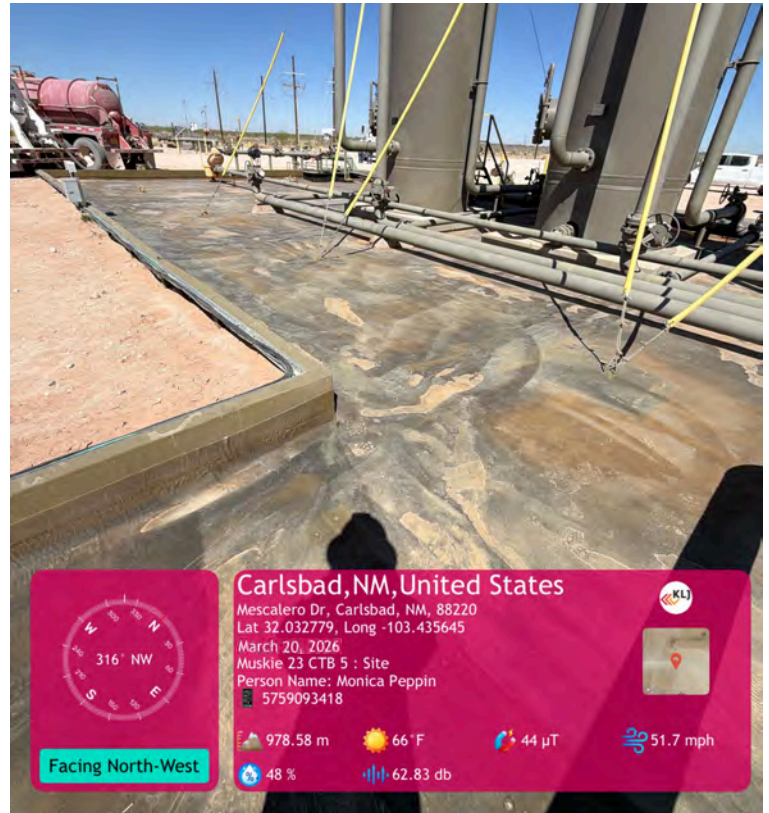


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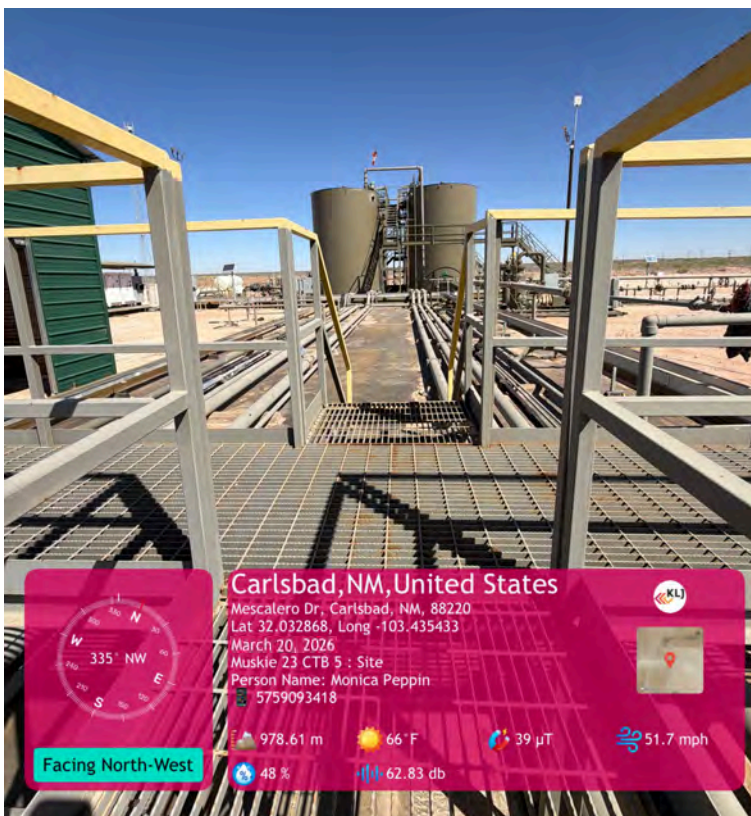
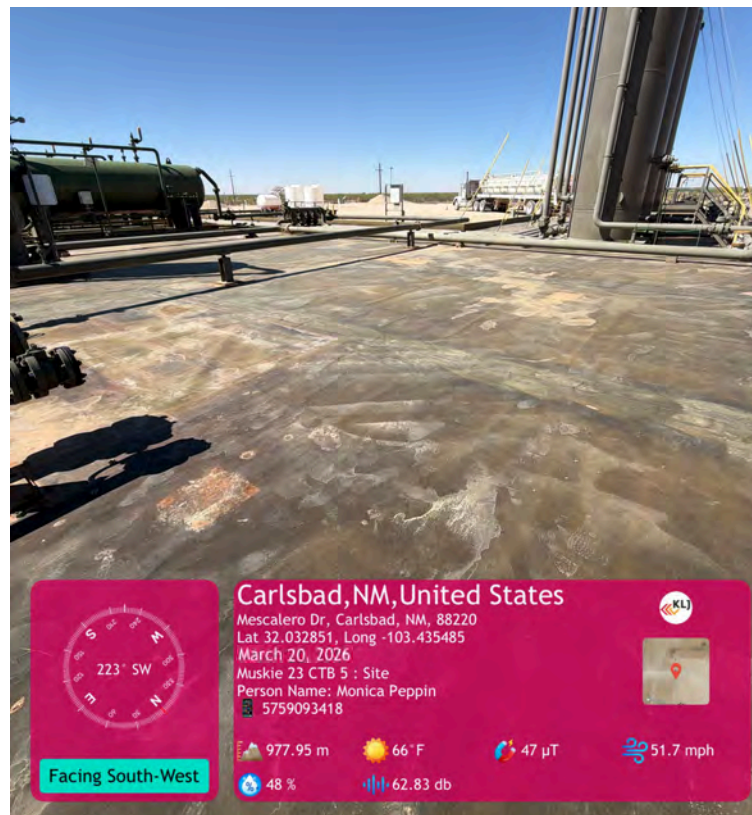


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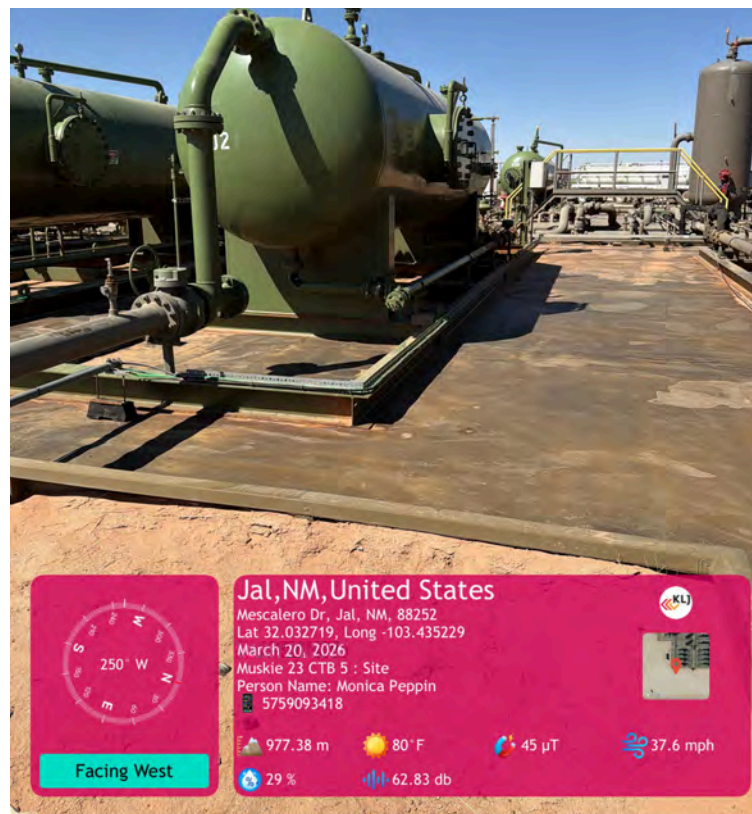
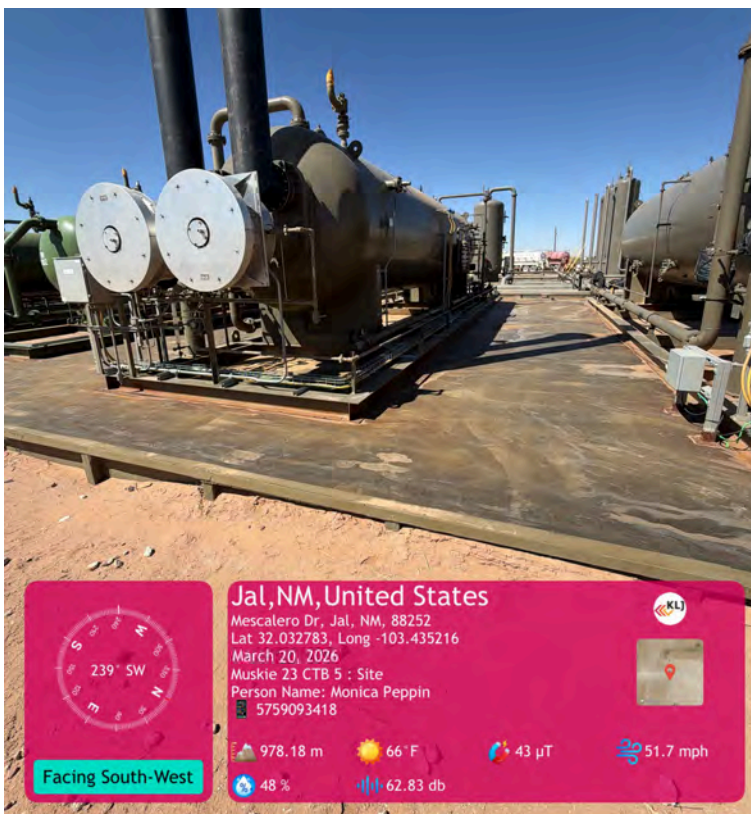
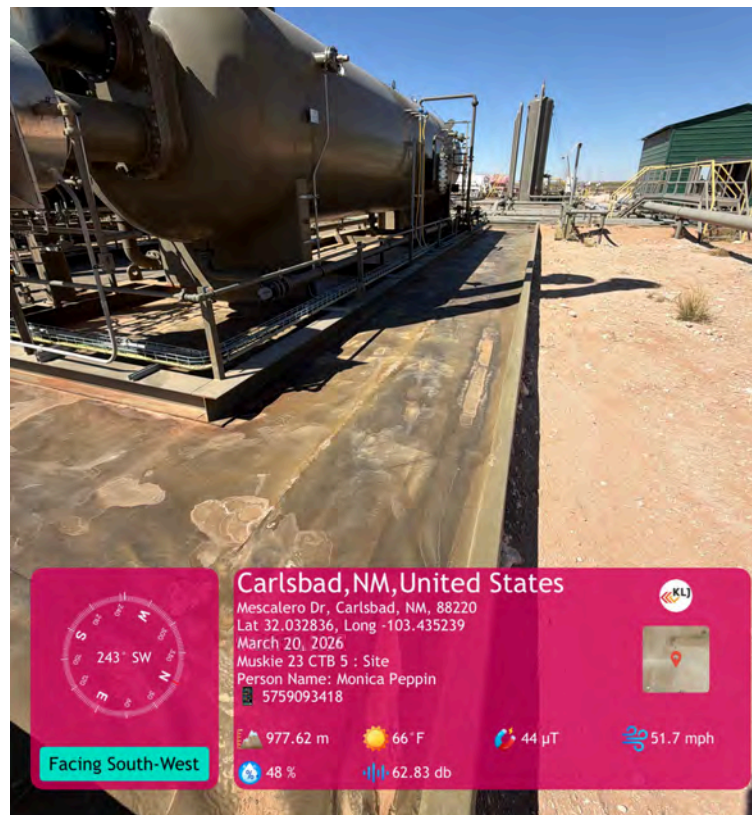


Photolog





Photolog





Additional Notes & Recommendations

- Inspection complete. Liner meets standards and is in compliance and passes inspection.
- Finish uploading field notes and photolog report for supporting documentation to request closure.
- No additional recommendations.
- Liner integrity confirmed.

Acknowledgement & Signature

Technician: Monica Peppin

Date: March 20, 2026

Signature: 

Departure Time: 11:26 AM



APPENDIX B

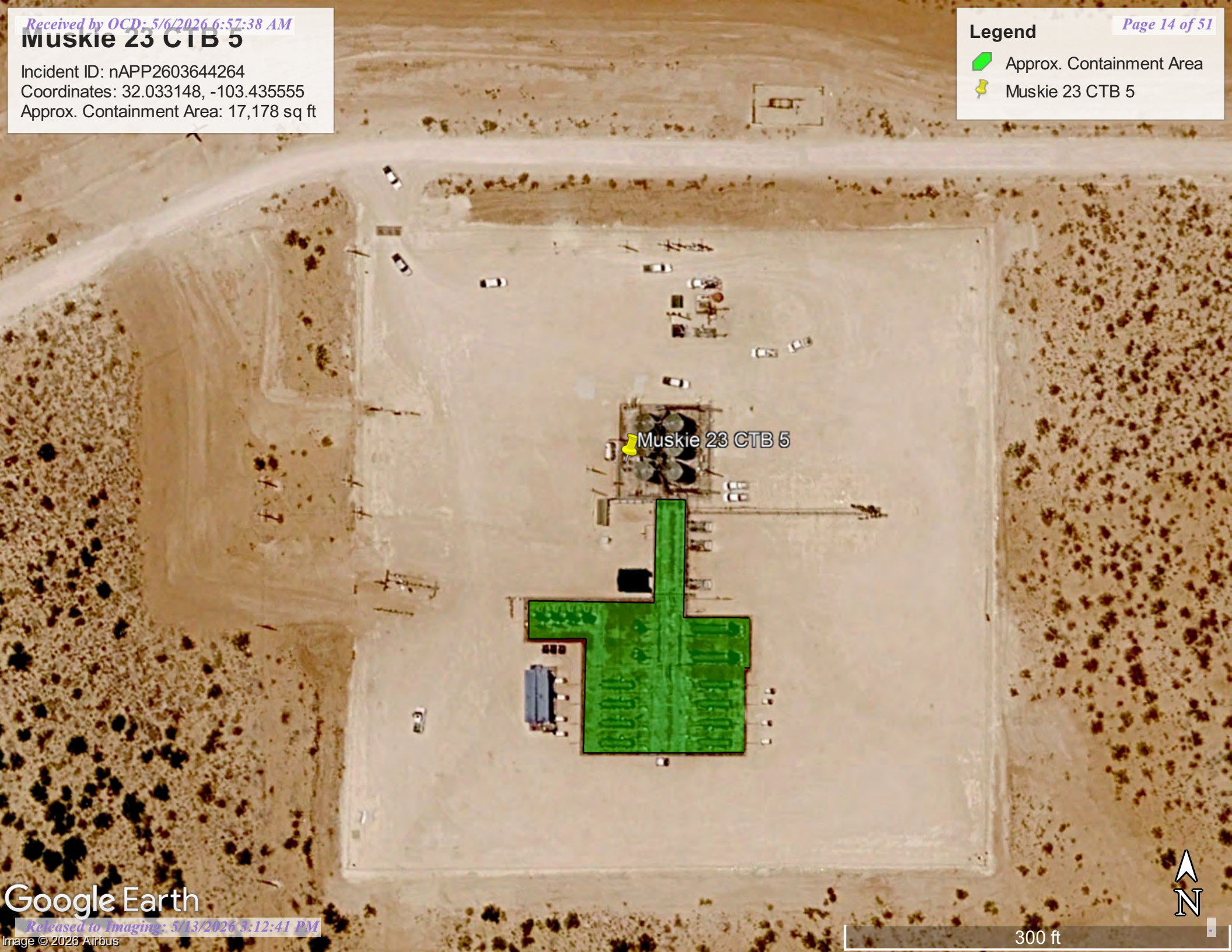
CLOSURE CRITERIA RESEARCH

Muskie 23 CTB 5

Incident ID: nAPP2603644264
Coordinates: 32.033148, -103.435555
Approx. Containment Area: 17,178 sq ft

Legend

-  Approx. Containment Area
-  Muskie 23 CTB 5



Muskie 23 CTB 5



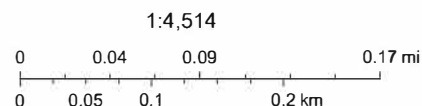


7/4/2025, 6:40:00 AM

- Override 1
- GIS WATERS PODs
- Active
- OSE District Boundary
- Water Right Regulations
- Closure Area

Nearest DTGW Pod
C-04856-POD1
Distance
0.18 miles

Well Type
Temporary
Borehole
Well Depth
105 ft bgs



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Maxar



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) POD 1		WELL TAG ID NO. N/A		OSE FILE NO(S). C-4856 POD 1	
	WELL OWNER NAME(S) Devon Energy Production Company				PHONE (OPTIONAL) 575-748-1838	
	WELL OWNER MAILING ADDRESS 205 E. Bender Road #150				CITY Hobbs	STATE ZIP NM 88240
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE	MINUTES 01	SECONDS 51.64	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84
		LONGITUDE	103	26	14.78	
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE						

2. DRILLING & CASING INFORMATION	LICENSE NO. WD1188	NAME OF LICENSED DRILLER John Scarborough			NAME OF WELL DRILLING COMPANY John Scarborough Drilling Inc.			
	DRILLING STARTED 07/25/2024	DRILLING ENDED 07/25/2024	DEPTH OF COMPLETED WELL (FT) 105	BORE HOLE DEPTH (FT) 105	DEPTH WATER FIRST ENCOUNTERED (FT) N/A			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A			
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES – SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER – SPECIFY:							
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	105	5	Soil Boring	-	-	-	-

OSE DIT AUG 1 2024 PM 1:43

3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
	FROM	TO				
				N/A		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 04/30/19)

FILE NO. <u>C-4856-POD 1</u>	POD NO. <u>1</u>	TRN NO. <u>763064</u>
LOCATION <u>Mon 26.34.23.232</u>	WELL TAG ID NO. <u> </u>	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
	FROM	TO				
	0	10	10	Silty Sand, Medium Brown to tan, Medium to fine grained	Y ✓ N	
	10	20	10	Silty Sand, Medium brown to red, Medium to fine grained	Y ✓ N	
	20	30	10	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
	30	35	5	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
	35	40	5	Sand with clay, light brown to white, fine to medium with some red clay	Y ✓ N	
	40	48	4	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
	48	55	8	Sandstone, Light brown to white, fine to coarse grained	Y ✓ N	
	55	58	3	Sand with clay, light brown to yellow, very fine to medium with some grey clay	Y ✓ N	
	58	60	2	Sand with clay, light brown to grey, very fine to medium with some grey clay	Y ✓ N	
	60	68	8	Clay with sand, medium brown to red, with some medium brown sand	Y ✓ N	
	68	70	2	Sand with clay, light to medium brown, very fine to medium with some grey clay	Y ✓ N	
	70	74	4	Sand with clay medium brown to red, with some red clay	Y ✓ N	
	74	80	6	Sand with clay, light brown to grey, very fine to medium with some grey clay	Y ✓ N	
	80	90	10	Sand with clay, light brown to yellow, very fine to medium with some grey clay	Y ✓ N	
	90	100	10	Silty Sand, light to medium brown, medium to fine grained	Y ✓ N	
	100	105	5	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
	105	105	0	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY:					TOTAL ESTIMATED WELL YIELD (gpm): 0.00	

5. TEST, RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	MISCELLANEOUS INFORMATION:	Temporary well material removed and soil boring backfilled using drill cuttings from total depth to 10 ft below ground surface (bgs), then hydrated bentonite chips 10 ft bgs to ground surface. OCD DJJ AUG 1 2024 PM 1:43
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:	

6. SIGNATURE	BY SIGNING BELOW, I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED WELL. I ALSO CERTIFY THAT THE WELL TAG, IF REQUIRED, HAS BEEN INSTALLED AND THAT THIS WELL RECORD WILL ALSO BE FILED WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLETION OF WELL DRILLING.	
	Scott Scarborough <small>Digitally signed by Scott Scarborough Date: 2024.07.30 10:43:42 -06'00'</small>	DATE

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 04/30/2019)	
FILE NO. <u>C-4856-POD 1</u>	POD NO. <u>1</u>	TRN NO. <u>763064</u>	
LOCATION <u>Mon 26.34.23.232</u>		WELL TAG ID NO. <u> </u>	PAGE 2 OF 2



State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

**STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER**

Trn Nbr: 763064
File Nbr: C 04856
Well File Nbr: C 04856 POD1

Aug. 01, 2024

ASHLEY GIOVENGO
ENSOLUM, LLC
3122 NATIONAL PARKS HIGHWAY
CARLSBAD, NM 88220

Greetings:

The above numbered permit was issued in your name on 07/11/2024.

The Well Record was received in this office on 08/01/2024, stating that it had been completed on 07/25/2024, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 07/11/2025.

If you have any questions, please feel free to contact us.

Sincerely,

A handwritten signature in blue ink that reads "Maret Thompson".

Maret Thompson
(575) 622-6521

drywell



Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

State Engineer

**STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER**

Trn Nbr: 763064
File Nbr: C 04856
Well File Nbr: C 04856 POD1

Aug. 01, 2024

DALE WOODALL
DEVON ENERGY PRODUCTION COMPANY
205 E. BENDER RD. #150
HOBBS, NM 88240

Greetings:

The above numbered permit was issued in your name on 07/11/2024.

The Well Record was received in this office on 08/01/2024, stating that it had been completed on 07/25/2024, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 07/11/2025.

If you have any questions, please feel free to contact us.

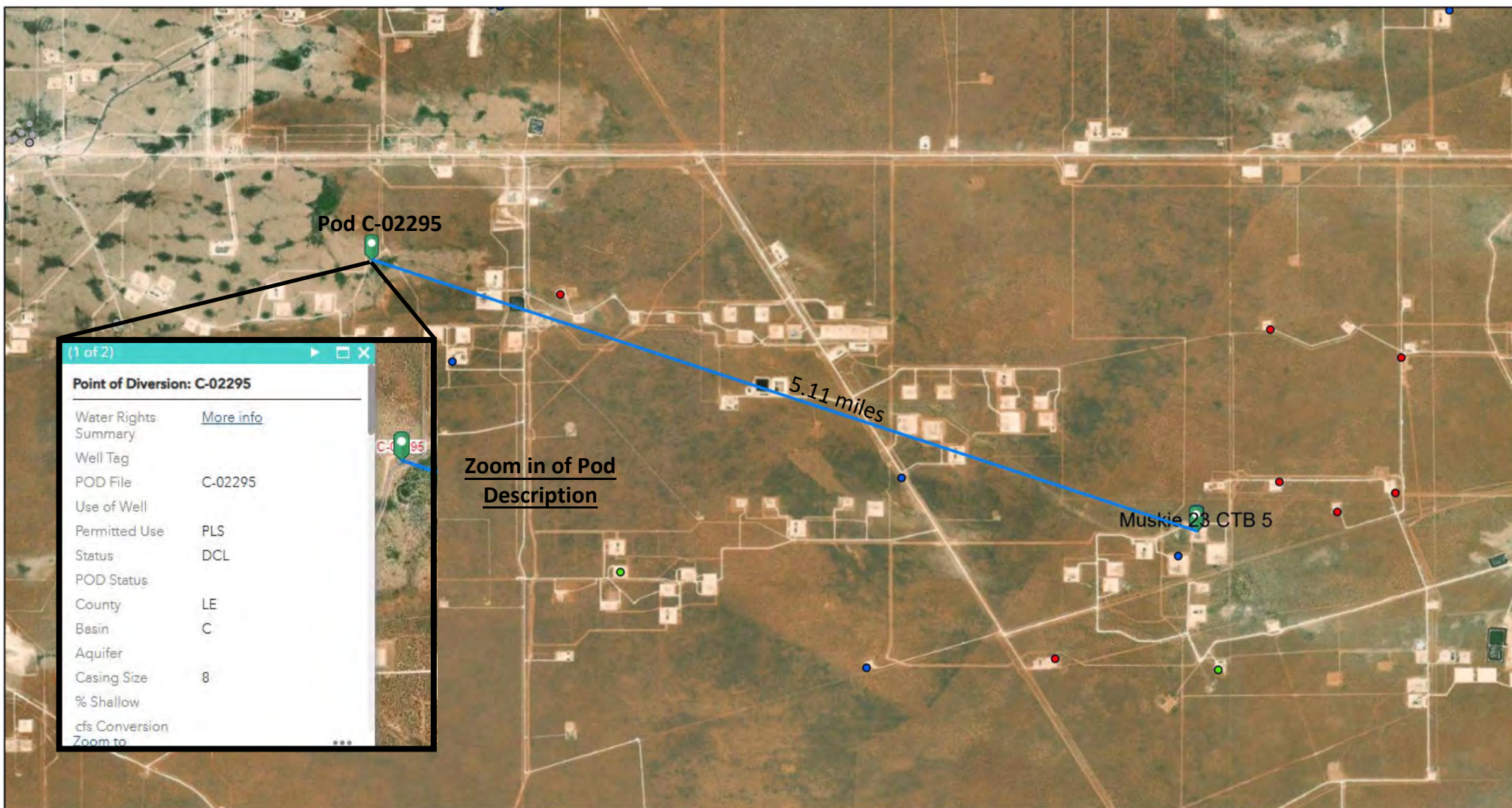
Sincerely,

A handwritten signature in blue ink, appearing to read "Maret Thompson".

Maret Thompson
(575) 622-6521

drywell

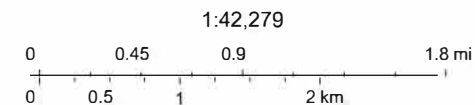
Muskie 23 CTB 5 - Domestic Well Proximity Map



7/4/2025, 6:55:48 AM

- Override 1
 - Pending
 - OSE District Boundary
 - Plugged
 - Active
 -
- GIS WATERS PODs

Nearest Domestic Well
OSE Pod C-02295
Well Type
 Livestock Watering
Distance
 5.11 miles



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Maxar

Monica Peppin
 This is an unofficial map from the OSE's online application.

File No. C-2295



NEW MEXICO OFFICE OF THE STATE ENGINEER



Update Well Location

Date: 05/15/2020 POD No.: C-2295 OSE Staff: Chris Angel

Instructions:

Use this form to correct or update POD location(s) based on In-Office Geospatial Applications. Update WATERS by creating a UWL transaction in the pertinent file number(s). Create and image a map, if necessary.

Current Location:

NM State Plane (NAD83) - In feet	NM West Zone <input type="checkbox"/>	X (in feet): Y (in feet):		
	NM Central Zone <input type="checkbox"/>			
	NM East Zone <input type="checkbox"/>			
UTM (NAD83) - In meters	UTM Zone 13N <input type="checkbox"/>	Easting (in meters): Northing (in meters):		
	UTM Zone 12N <input type="checkbox"/>			
Lat/Long (WGS84) - To 1/10 th of second <input type="checkbox"/> Check if seconds are decimal format	Lat:	deg	min	sec
	Long:	deg	min	sec
Other Location Information (complete the below, if applicable):				
PLSS Quarters or Halves: NENESE		Section: 12	Township: 26 South	Range: 33 East
County: Lea		Subbasin: Carlsbad		

Updated Location:

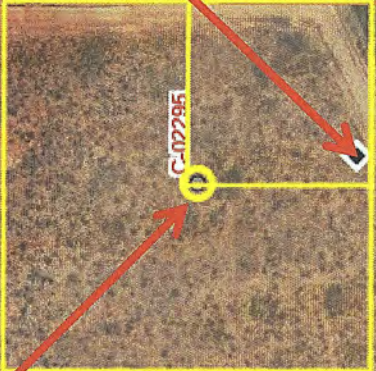
NM State Plane (NAD83) - In feet	NM West Zone <input type="checkbox"/>	X (in feet): Y (in feet):				
	NM Central Zone <input type="checkbox"/>					
	NM East Zone <input type="checkbox"/>					
UTM (NAD83) - In meters	UTM Zone 13N <input type="checkbox"/>	Easting (in meters): Northing (in meters):				
	UTM Zone 12N <input type="checkbox"/>					
Lat/Long (WGS84) - To 1/10 th of second <input type="checkbox"/> Check if seconds are decimal format	Lat: 32	deg	03	min	22.3	sec
	Long: 103	deg	31	min	6.3	sec
Other Location Information (complete the below, if applicable):						
PLSS Quarters or Halves:		Section:	Township:	Range:		
County: Lea		Subbasin: Carlsbad				

Comments:

A GPS was used to locate the well on the attached map.

File No.: C-2295 Trn. No.: 673898

C-2295 POD Finder Location



Coordinate Search

Input Coords

C-2295 Actual

Let: D 32 M 03 S 22.3 Update Location

Lon: D 103 M 31 S 16.3

Change input spatial reference

SPS UTM GEO PLSS

Set PLSS

Allow multiple points

Output Coords

PLSS (BLM)

SENESE Quarter of Section 12, Township 026S, Range 033E

Derived from CADNSDI- Qtr Sec. locations are calculated and are only approximations

Change Output Spatial Reference

12



Muskie 23 CTB 5
Nearest Significant Watercourse: Riverine
Distance: 0.90 miles



July 1, 2025

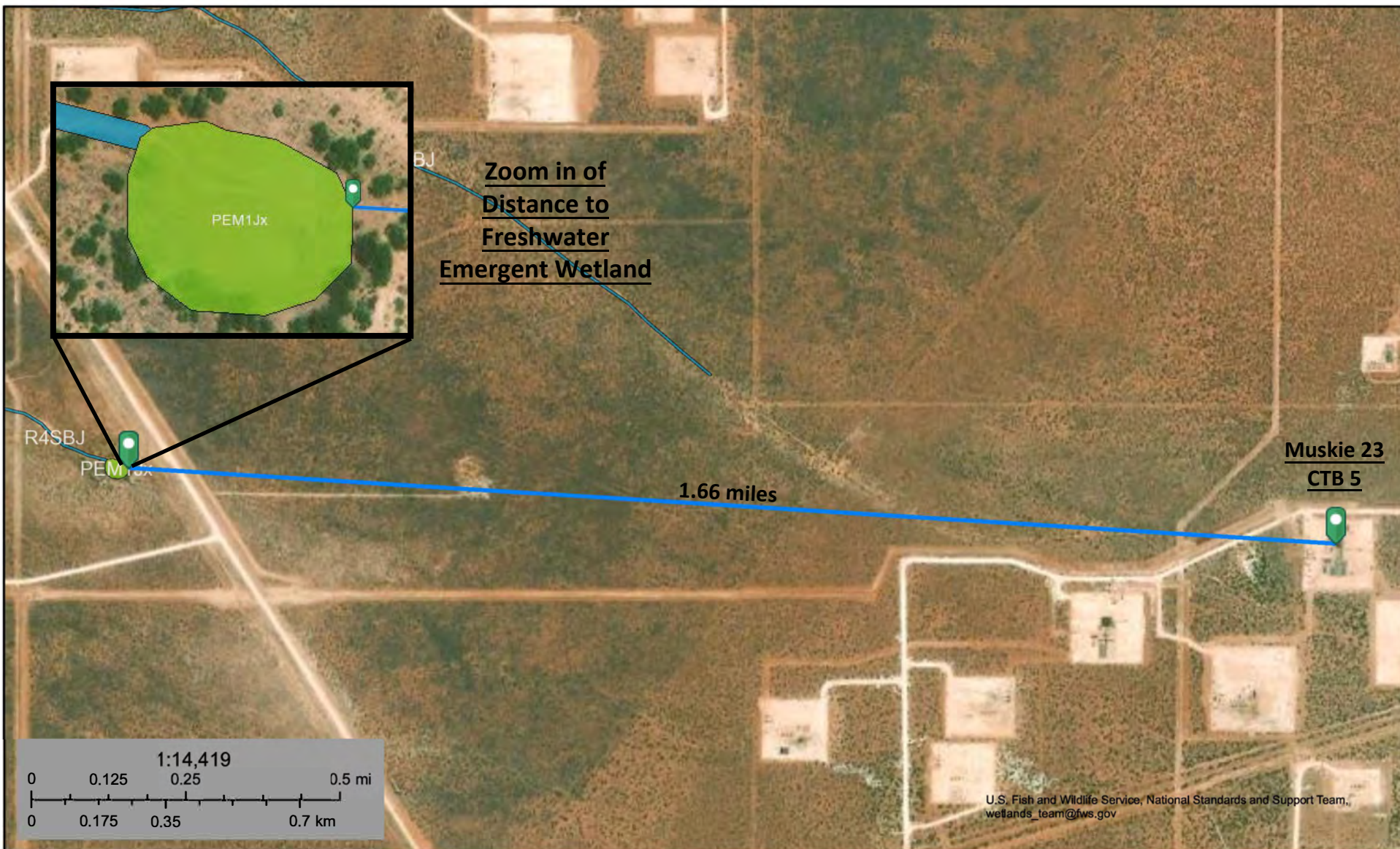
Wetlands

- Estuarine and Marine Deepwater
- Freshwater Emergent Wetland
- Lake
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- 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.



Nearest Playa: Freshwater Emergent Wetland
Distance: 1.66 miles



July 1, 2025

Wetlands





- | | | |
|--------------------------------|-----------------------------------|----------|
| Estuarine and Marine Deepwater | Freshwater Emergent Wetland | Lake |
| Estuarine and Marine Wetland | Freshwater Forested/Shrub Wetland | Other |
| | Freshwater Pond | Riverine |

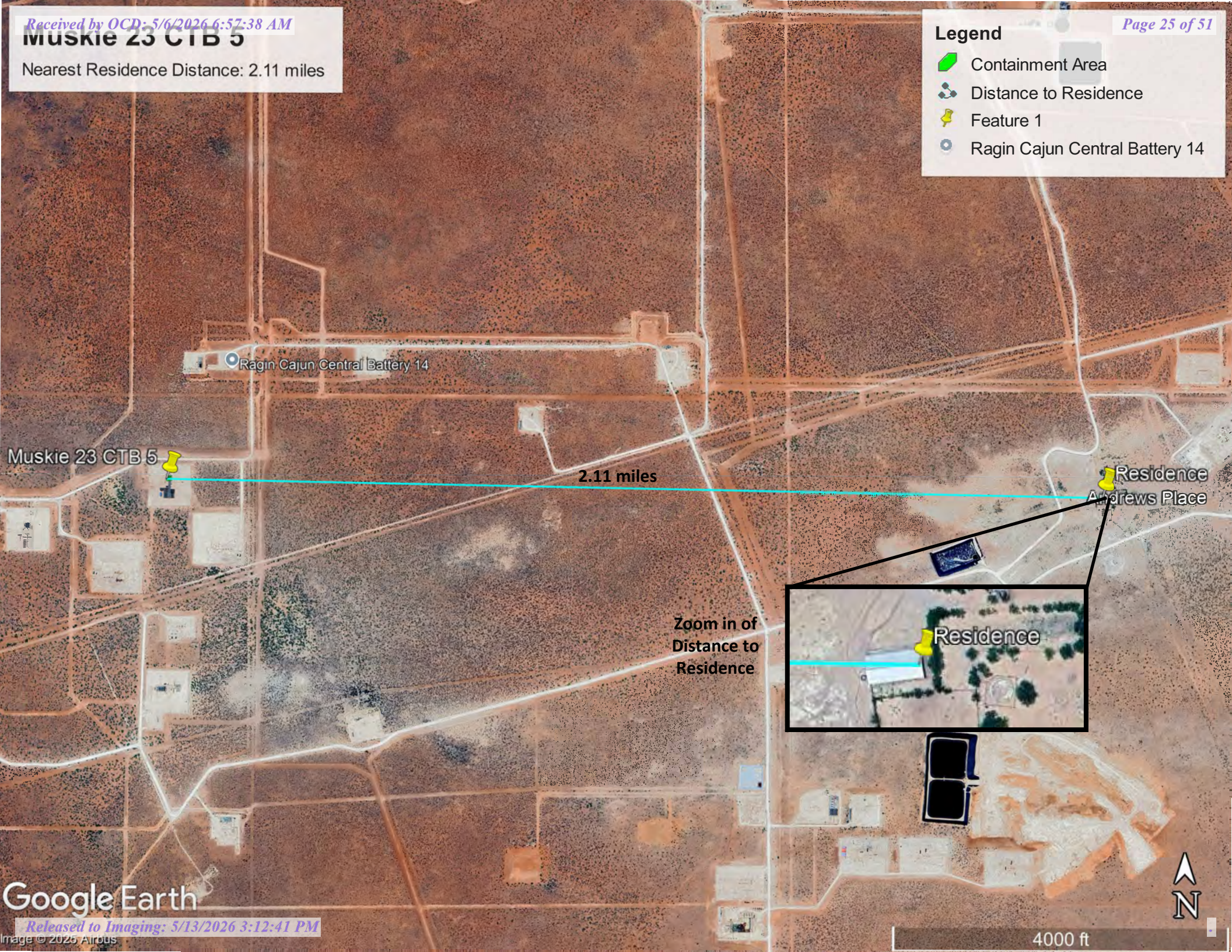
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Muskie 23 CTB 5

Nearest Residence Distance: 2.11 miles

Legend

-  Containment Area
-  Distance to Residence
-  Feature 1
-  Ragin Cajun Central Battery 14



Muskie 23 CTB 5

Ragin Cajun Central Battery 14

2.11 miles

Residence Andrews Place




Zoom in of Distance to Residence

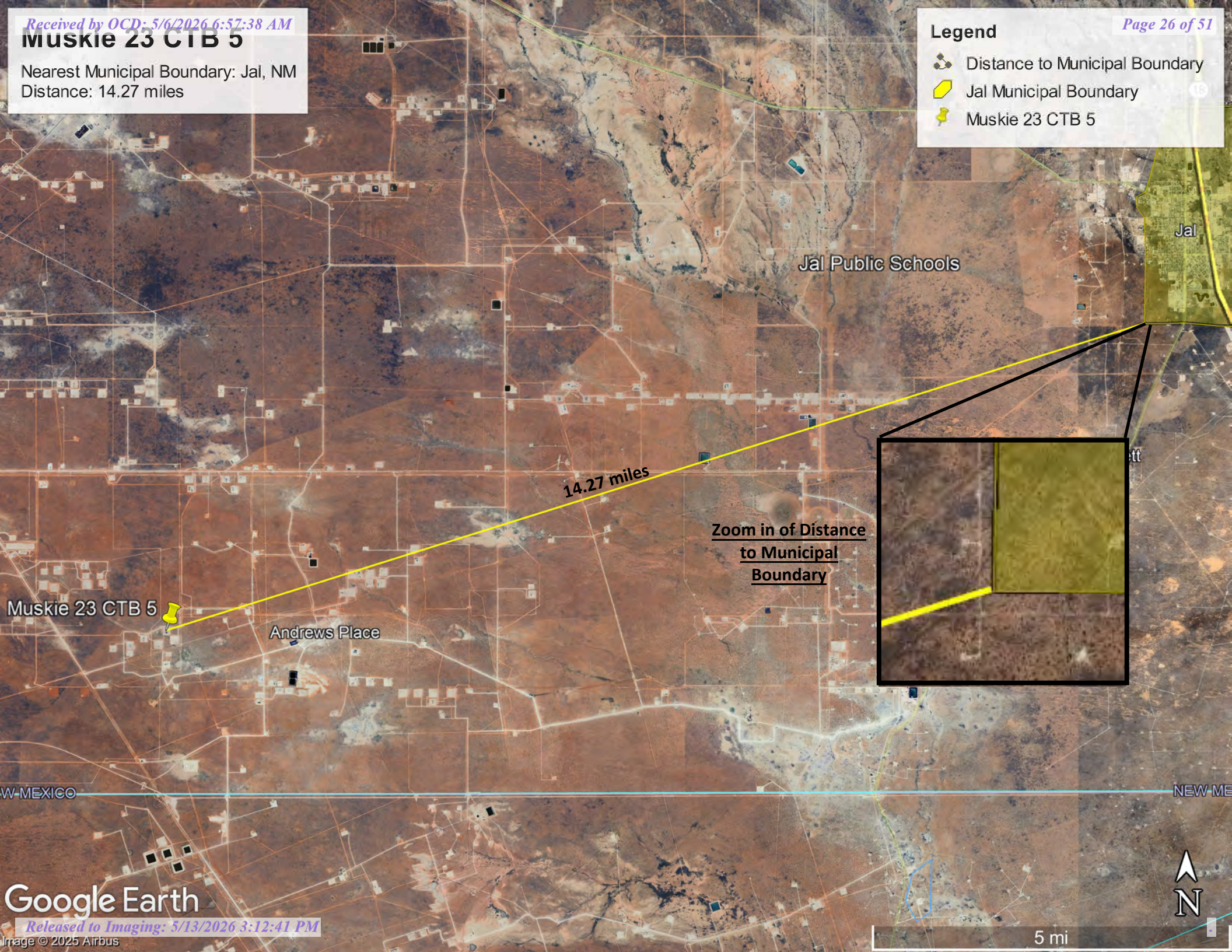
Residence

Muskie 23 CTB 5

Nearest Municipal Boundary: Jal, NM
Distance: 14.27 miles

Legend

-  Distance to Municipal Boundary
-  Jal Municipal Boundary
-  Muskie 23 CTB 5



14.27 miles

Zoom in of Distance to Municipal Boundary

Muskie 23 CTB 5

Andrews Place

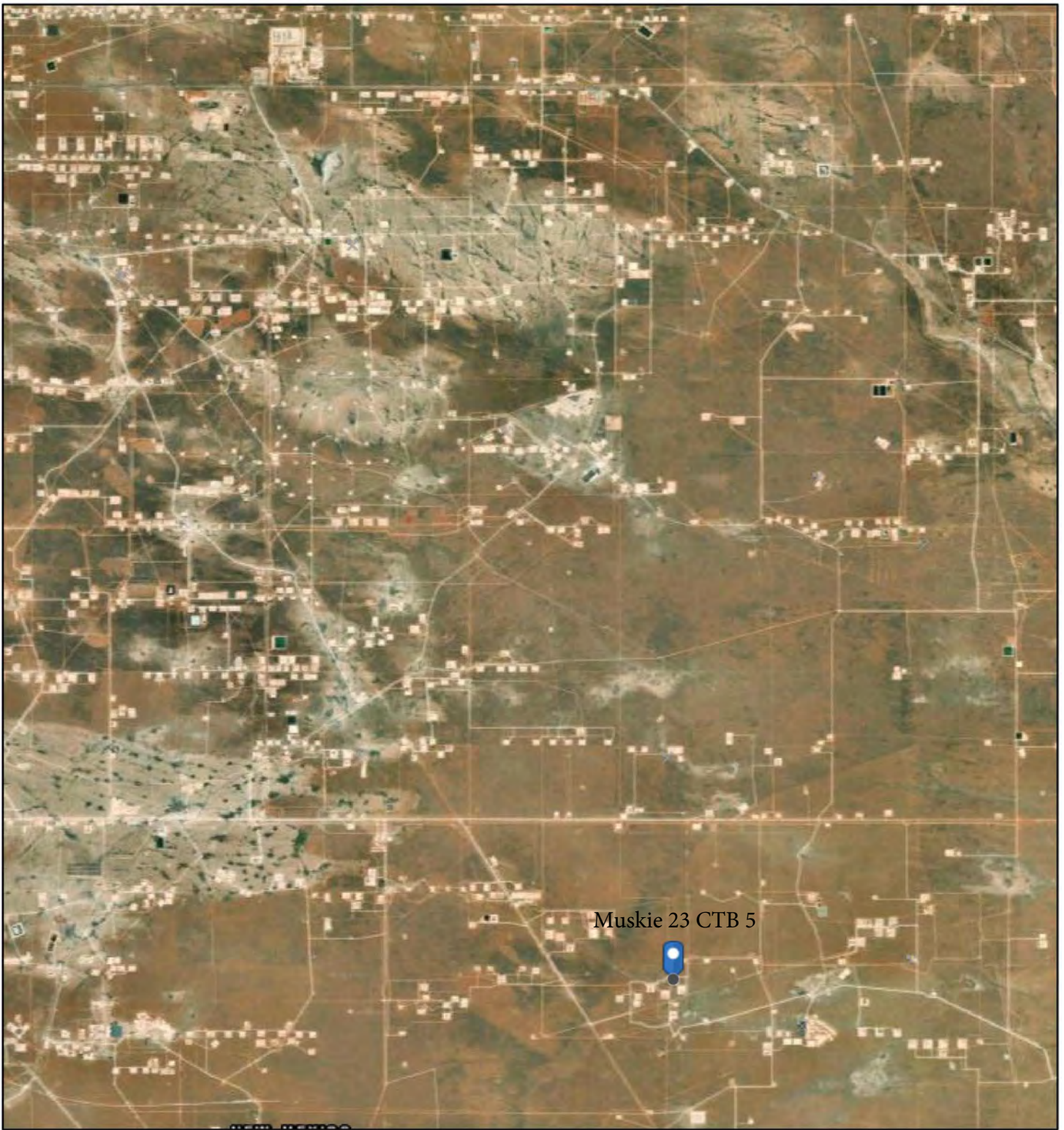
Jal

Jal Public Schools

NEW MEXICO

NEW MEXICO

Muskie 23 CTB 5 - Mines Proximity

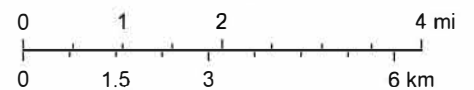


7/17/2025, 10:20:56 AM

1:144,448

Registered Mines

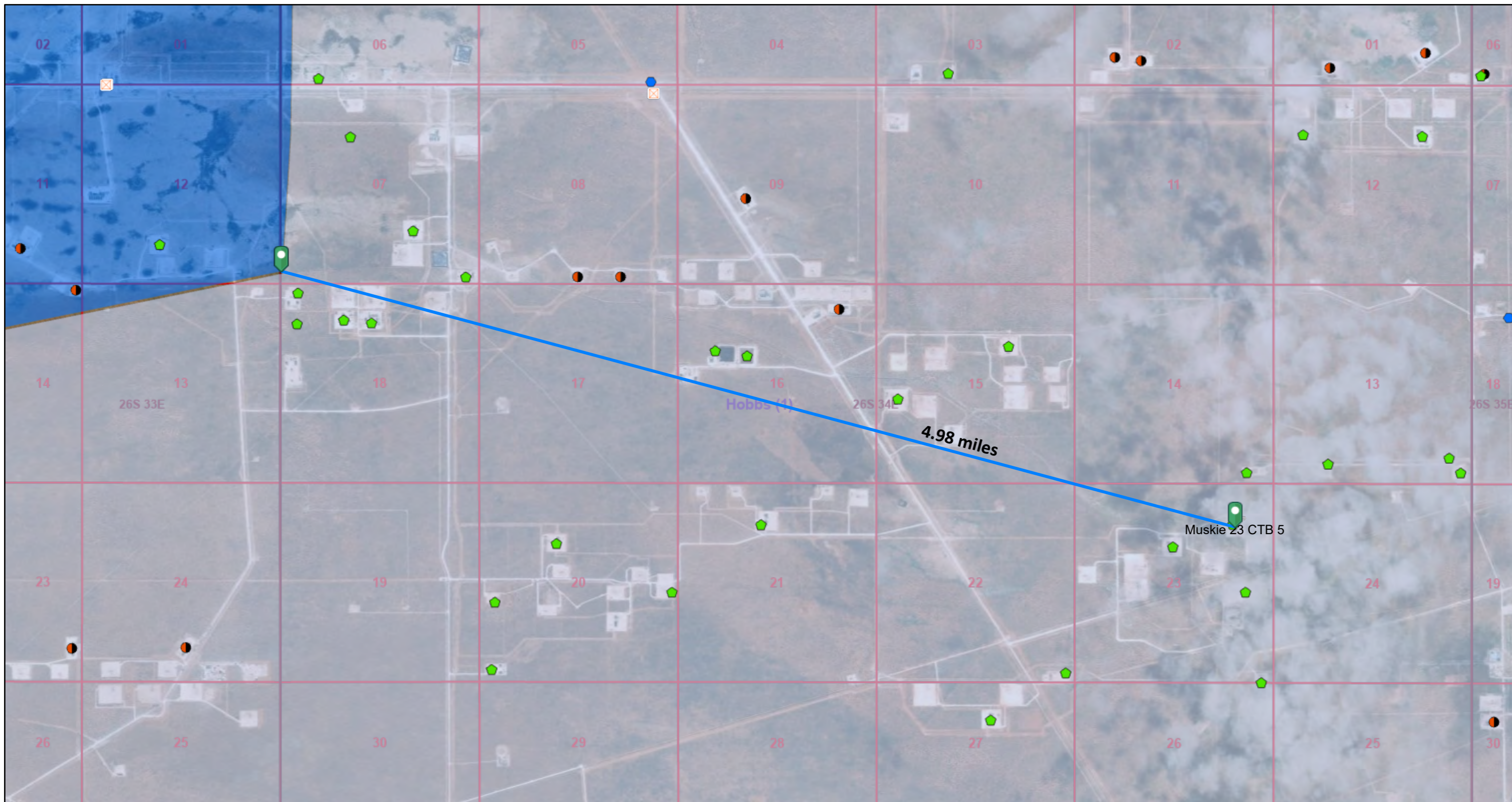
No Mines within 5 mile radius



- ✘ Aggregate, Stone etc.
- ✘ Aggregate, Stone etc.

Esri, HERE, Garmin, Earthstar Geographics

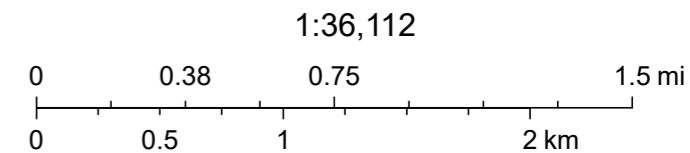
Muskie 23 CTB 5 Karst Potential



4/26/2026, 7:18:11 PM

- | | | | |
|---------------------|----------|-----------------------------------|---------------------|
| Override 1 Facility | Tank | Karst Occurrence Potential Medium | OCD Districts |
| Other | Water | Karst Occurrence Potential Low | PLSS First Division |
| | Inactive | | PLSS Townships |

Muskie 23 CTB 5
Karst Potential
 Low
Nearest Medium Karst Zone
 4.98 miles

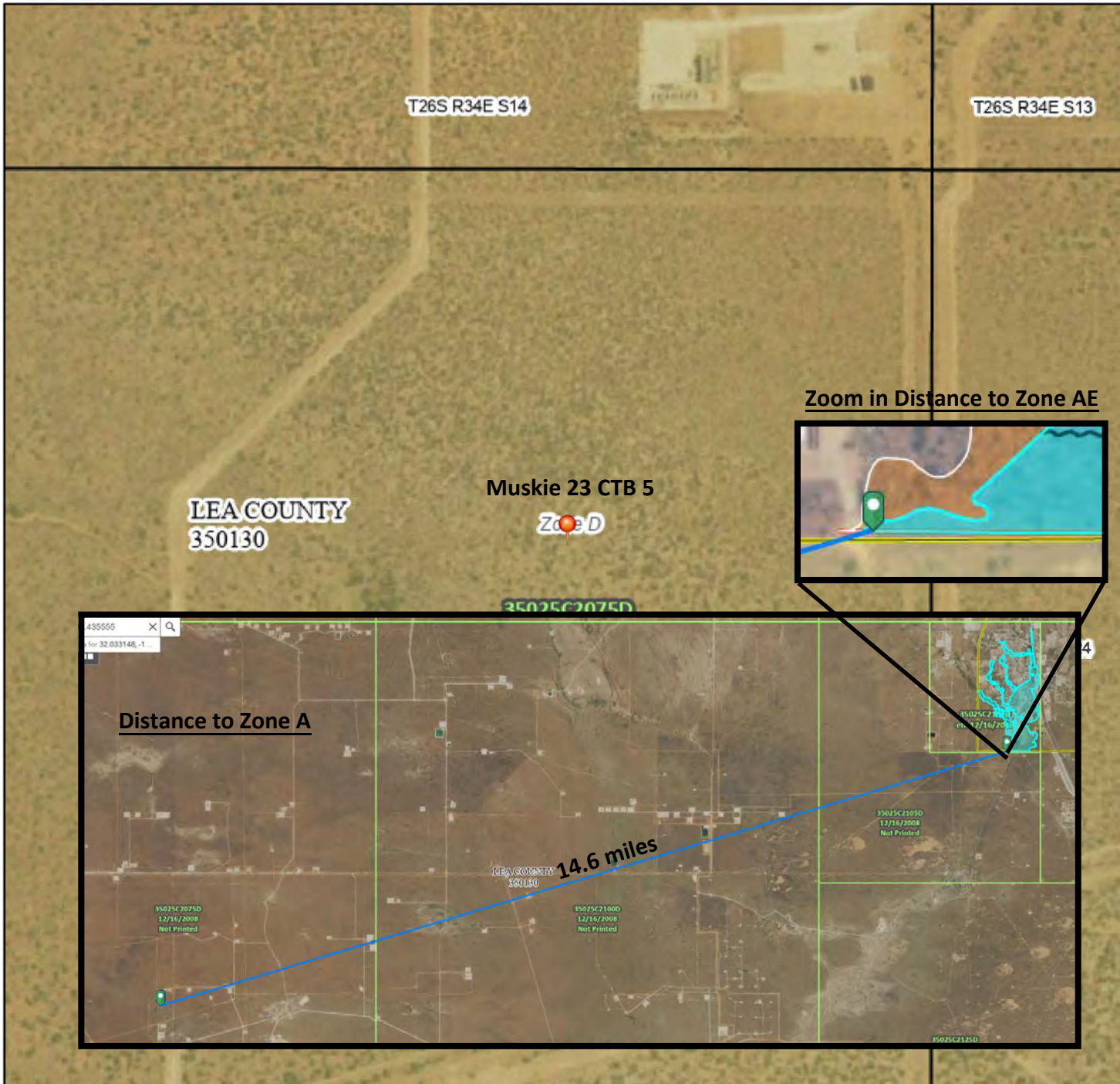


Esri, HERE, Garmin, Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department., BLM, OCD, New Mexico Tech, OCD, BLM, Vantor

National Flood Hazard Layer FIRMMette



103°26'27"W 32°2'15"N



Zoom in Distance to Zone AE



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
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

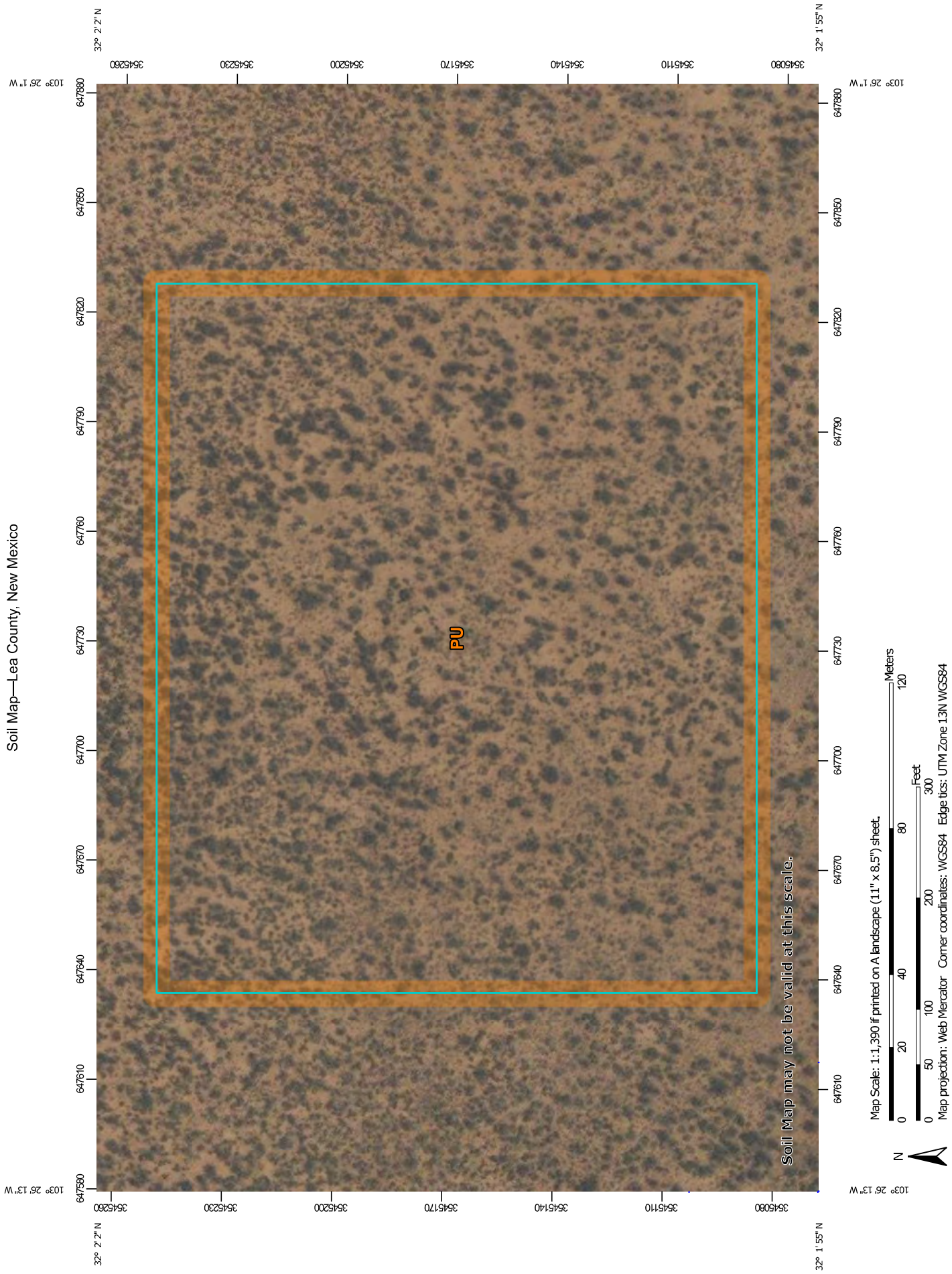
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped
	The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.	



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 7/4/2025 at 1:23 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.



Soil Map—Lea County, New Mexico

MAP LEGEND

- Area of Interest (AOI)
- 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
- 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 21, Sep 3, 2024

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PU	Pyote and Maljamar fine sands	7.9	100.0%
Totals for Area of Interest		7.9	100.0%

Map Unit Description: Pyote and Maljamar fine sands---Lea County, New Mexico

Lea County, New Mexico

PU—Pyote and Maljamar fine sands

Map Unit Setting

National map unit symbol: dmqq
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Pyote and similar soils: 46 percent
Maljamar and similar soils: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pyote

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 30 inches: fine sand
Bt - 30 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High
 (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Map Unit Description: Pyote and Maljamar fine sands---Lea County, New Mexico

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Description of Maljamar

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 24 inches: fine sand
Bt - 24 to 50 inches: sandy clay loam
Bkm - 50 to 60 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very low
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: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: R070BC022NM - Sandhills

Map Unit Description: Pyote and Maljamar fine sands---Lea County, New Mexico

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 21, Sep 3, 2024



Ecological site R070BD003NM Loamy Sand

Accessed: 07/04/2025

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Associated sites

R070BD004NM	Sandy Sandy
R070BD005NM	Deep Sand Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site is on uplands, plains, dunes, fan piedmonts and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock. Slope range on this site range from 0 to 9 percent with the average of 5 percent.

Low stabilized dunes may occur occasionally on this site. Elevations range from 2,800 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Alluvial fan (3) Dune
Elevation	2,800–5,000 ft
Slope	9%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

Table 3. Representative climatic features

Frost-free period (average)	221 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

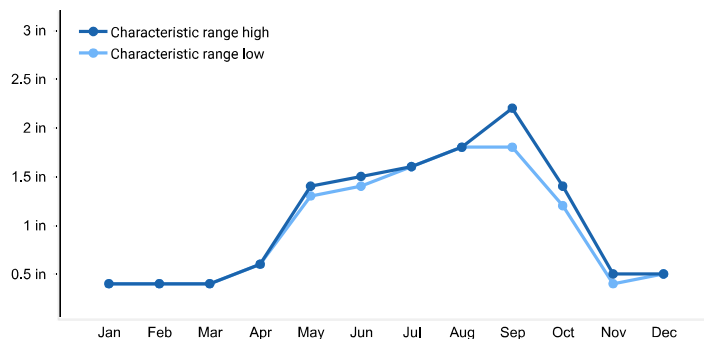


Figure 2. Monthly precipitation range

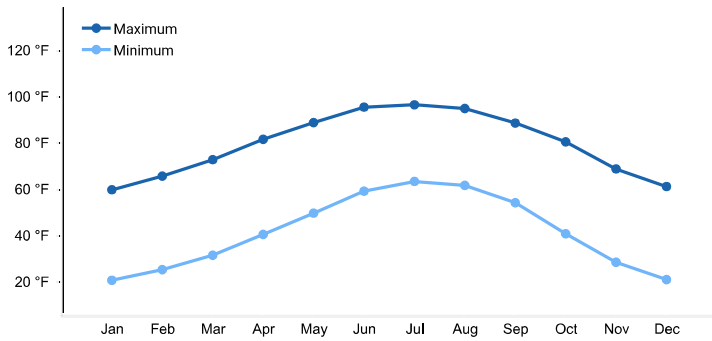


Figure 3. Monthly average minimum and maximum temperature

Influencing water features

This site is not influenced from water from wetlands or streams.

Soil features

Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam.

Subsurface is a loamy fine sand, coarse sandy loam, fine sandy loam or loam that averages less than 18 percent clay and less than 15 percent carbonates.

Substratum is a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

These soils, if unprotected by plant cover and organic residue, become wind blown and low hummocks are formed.

Minimum and maximum values listed below represent the characteristic soils for this site.

Characteristic soils are:

- Maljamar
- Berino
- Parjarito
- Palomas
- Wink
- Pyote

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Fine sandy loam (3) Loamy fine sand
Family particle size	(1) Sandy

Ecological dynamics

Overview

The Loamy Sand site intergrades with the Deep Sand and Sandy

Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid
Soil depth	40–72 in
Surface fragment cover <=3"	10%
Surface fragment cover >3"	Not specified
Available water capacity (0–40in)	5–7 in
Calcium carbonate equivalent (0–40in)	3–40%
Electrical conductivity (0–40in)	2–4 mmhos/cm
Sodium adsorption ratio (0–40in)	2
Soil reaction (1:1 water) (0–40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	4–12%
Subsurface fragment volume >3" (Depth not specified)	Not specified

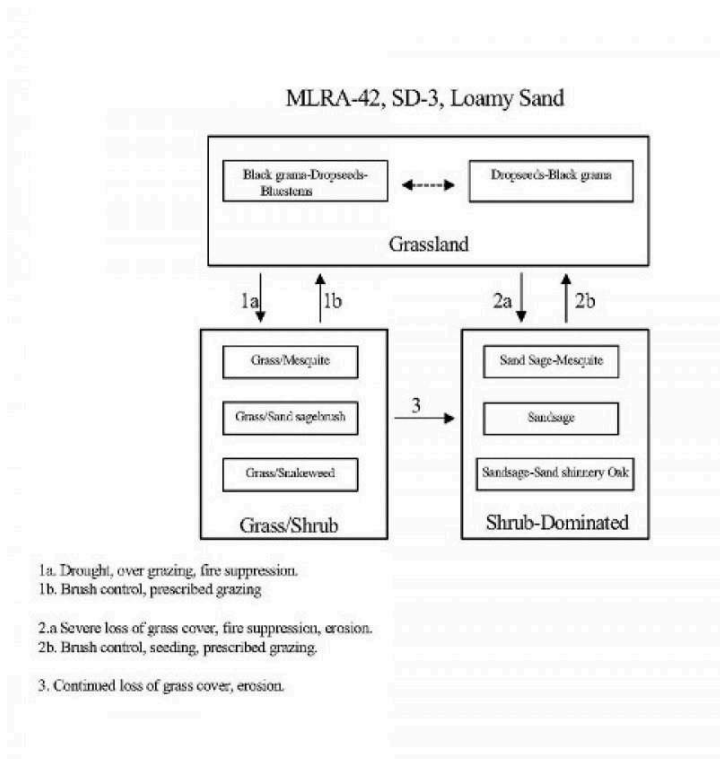
sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (sandy loam and fine sandy loam) surfaces. Although Loamy Sand and

Deep Sand sites have similar surface textures, the depth to a textural change is different—Loamy Sand sub-surface textures typically increase in clay at approximately 20 to 30 inches, and Deep Sand sites not until around 40 inches.

The historic plant community of Loamy Sand sites is dominated by black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*). Perennial and annual forb abundance and distribution are dependent on precipitation. Litter and to a lesser extent, bare ground, are a significant proportion of ground cover while grasses compose the remainder. Decreases in black grama indicate a transition to either a grass/shrub or shrub-dominated state. The grass/shrub state is composed of grasses/honey mesquite (*Prosopis glandulosa*), grasses/broom snakeweed (*Gutierrezia sarothrae*), or grasses/sand sage. The shrub-dominated state occurs after a severe loss of grass cover and a prevalence of sand sage with secondary shinnery oak and mesquite. Heavy grazing intensity and/or drought are influential drivers in decreasing black grama and bluestems and subsequently increasing shrub cover, erosion, and bare patches. Historical fire suppression also encourages shrub pervasiveness and a competitive advantage over grass species (McPherson 1995). Brush and grazing management, however, may reverse grass/shrub and shrub-dominated states toward the grassland-dominated historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram):



**State 1
Historic Climax Plant Community**

**Community 1.1
Historic Climax Plant Community**

Grassland: The historic plant community is a uniformly distributed grassland dominated by black grama, dropseeds, and bluestems. Sand sage and shinnery oak are evenly dispersed throughout the grassland due to the coarse soil surface texture. Perennial and annual forbs are common but their abundance and distribution are reflective of precipitation. Bluestems initially, followed by black grama, decrease with drought and heavy grazing intensity. Historical fire frequency is unknown but likely occurred enough to remove small shrubs to the competitive advantage of grass species. Fire suppression, drought conditions, and excessive grazing drive most grass species out of competition with shrub species. Diagnosis: Grassland dominated by black grama, dropseeds, and bluestems. Shrubs, such as sand sage, shinnery oak, and mesquite are dispersed throughout the grassland. Forbs are present and populations fluctuate with precipitation variability.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	442	833	1224
Forb	110	208	306
Shrub/Vine	98	184	270
Total	650	1225	1800

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	28%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	22%

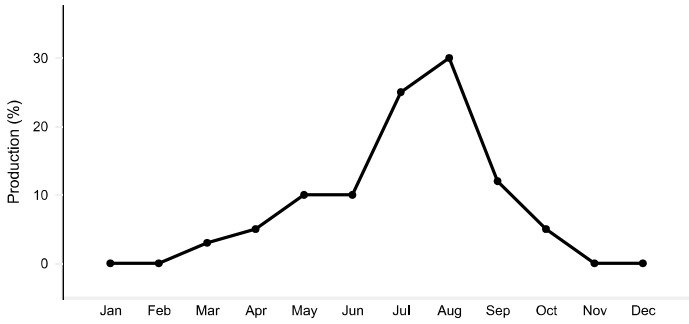


Figure 5. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community .

**State 2
Grass/Shrub**

**Community 2.1
Grass/Shrub**



Grass/Shrub State: The grass/shrub state is dominated by communities of grasses/mesquite, grasses/snakeweed, or grasses/sand sage. Decreases in black grama and bluestem species lead to an increase in bare patches and mesquite which further competes with grass species. An increase of dropseeds and threeawns occurs. Grass distribution becomes more patchy with an absence or severe decrease in black grama and bluestems. Mesquite provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Mesquite mortality when exposed to fire is low due to aggressive resprouting abilities. Herbicide application combined with subsequent prescribed fire may be more effective in mesquite reduction (Britton

and Wright 1971). Diagnosis: This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Dropseeds and threeawns have a patchy distribution. Transition to Grass/Shrub State (1a): The historic plant community begins to shift toward the grass/shrub state as drivers such as drought, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by a decrease in black grama with a subsequent increase of dropseeds, threeawns, mesquite, and snakeweed. Snakeweed has been documented to outcompete black grama especially under conditions of fire suppression and drought (McDaniel et al. 1984). Key indicators of approach to transition: • Loss of black grama cover • Surface soil erosion • Bare patch expansion • Increased dropseed/threeawn and mesquite, snakeweed, or sand sage abundances Transition to Historic Plant Community (1b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community.

**State 3
Shrub Dominated**

**Community 3.1
Shrub Dominated**

Shrub-Dominated State: The shrub-dominated state results from a severe loss of grass cover. This state's primary species is sand sage. Shinnery oak and mesquite also occur; however, grass cover is limited to intershrub distribution. Sand sage stabilizes light sandy soils from wind erosion, which enhances protected grass/forb cover (Davis and Bonham 1979). However, shinnery oak also responds to the sandy soils with dense stands due to an aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state. Key indicators of approach to transition: • Severe loss of grass species cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite abundance Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition (3) to a grassland-dominated state. Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite. Key indicators of approach to transition: • Continual loss of dropseeds/threeawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threeawn and mesquite/snakeweed abundance

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Warm Season			61–123	
	little bluestem	SCSC	<i>Schizachyrium scoparium</i>	61–123	–
2	Warm Season			37–61	
	sand bluestem	ANHA	<i>Andropogon hallii</i>	37–61	–
3	Warm Season			37–61	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	37–61	–
	silver bluestem	BOSA	<i>Bothriochloa saccharoides</i>	37–61	–
4	Warm Season			123–184	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	123–184	–
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	123–184	–
5	Warm Season			123–184	
	thin paspalum	PASE5	<i>Paspalum setaceum</i>	123–184	–
	plains bristlegrass	SEVU2	<i>Setaria vulpisetia</i>	123–184	–
	fringed signalgrass	URCI	<i>Urochloa ciliatissima</i>	123–184	–
6	Warm Season			123–184	
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	123–184	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	123–184	–
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	123–184	–
7	Warm Season			61–123	
	hooded windmill grass	CHCU2	<i>Chloris cucullata</i>	61–123	–
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	61–123	–
9	Other Perennial Grasses			37–61	
	Grass, perennial	2GP	<i>Grass, perennial</i>	37–61	–
Shrub/Vine					
8	Warm Season			37–61	
	New Mexico feathergrass	HENE5	<i>Hesperostipa neomexicana</i>	37–61	–
	giant dropseed	SPGI	<i>Sporobolus giganteus</i>	37–61	–
10	Shrub			61–123	
	sand sagebrush	ARFI2	<i>Artemisia filifolia</i>	61–123	–
	Havard oak	QUHA3	<i>Quercus havardii</i>	61–123	–
11	Shrub			34–61	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	37–61	–
	featherplume	DAFO	<i>Dalea formosa</i>	37–61	–
12	Shrub			37–61	
	jointfir	EPHED	<i>Ephedra</i>	37–61	–
	littleleaf ratany	KRER	<i>Krameria erecta</i>	37–61	–
13	Other Shrubs			37–61	
	Shrub (>.5m)	2SHRUB	<i>Shrub (>.5m)</i>	37–61	–
Forb					
14	Forb			61–123	
	leatherweed	CRPOP	<i>Croton pottsii</i> var. <i>pottsii</i>	61–123	–
	Indian blanket	GAPU	<i>Gaillardia pulchella</i>	61–123	–

	globemallow	SPHAE	<i>Sphaeralcea</i>	61-123	-
15	Forb			12-37	
	woolly groundsel	PACA15	<i>Packera cana</i>	12-37	-
16	Forb			61-123	
	touristplant	DIWI2	<i>Dimorphocarpa wislizeni</i>	61-123	-
	woolly plantain	PLPA2	<i>Plantago patagonica</i>	61-123	-
17	Other Forbs			37-61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	<i>Forb (herbaceous, not grass nor grass-like)</i>	37-61	-

Animal community

This Ecological Site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, desert cottontail, spotted ground squirrel, black-tailed prairie dog, yellow faced pocket gopher, Ord’s kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, roadrunner, meadowlark, burrowing owl, white necked raven, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake, dusty hognose snake and ornate box turtle. Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson’s hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups. Hydrologic Interpretations
Soil Series Hydrologic Group
Berino B
Kinco A
Maljamar B
Pajarito B
Palomas B
Wink B
Pyote A

Recreational uses

This site offers recreation potential for hiking, borseback riding, nature observation, photography and hunting. During years of

abundant spring moisture, this site displays a colorful array of wildflowers during May and June.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all kinds and classes of livestock at any time of year. In cases where this site has been invaded by brush species it is especially suited for goats. Mismanagement of this site will cause a decrease in species such as the bluestems, blsck grama, bush muhly, plains bristlegrass, New Mexico feathergrass, Arizona cottontop and fourwing saltbush. A corresponding increase in the dropseeds, windmill grass, fall witchgrass, silver bluestem, sand sagebrush, shinary oak and ephedra will occur. This will also cause an increase in bare ground which will increase soil erodibility. This site will respond well to a system of management that rotates the season of use.



Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.3 – 3.5
75 – 51 3.0 – 4.5
50 – 26 4.6 – 9.0
25 – 0 9.1 +

Muskie 23 CTB 5

Geological Formation - Qe/Qp
Description - Intermixed sands with local peat deposits. Quaternary Eolian Sand with Local Peat
Fine to medium wind-blown sands forming stabilized sheets and ridges. Local peat (Qp) occurs in depressions with poor drainage. Represents aeolian and intermittent wetland deposition on piedmont slopes.


Legend

-  Muskie 23 CTB 5
-  Qe/Qp

Qe/Qp

Name	Qe/Qp
AREA	0.730
PERIMETER	24.975
NMMAPDD83_	7901
NMMAPDD831	9561
P1	194
HP	3

Geological
Formation
Data

 Muskie 23 CTB 5



APPENDIX C

CORRESPONDENCE



RE: [EXTERNAL] nAPP2603644264 Muskie 23 CTB 5 Liner Inspection Notification

From Raley, Jim <Jim.Raley@dvn.com>
Date Tue 2026-03-17 1:02 PM
To Monica Peppin <Monica.Peppin@kljeng.com>
Cc Will Harmon <will.harmon@kljeng.com>

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Submitted 3/17

Jim Raley | Environmental Professional - Permian Basin
5315 Buena Vista Dr., Carlsbad, NM 88220
C: (575)689-7597 | jim.ralej@dvn.com



From: Monica Peppin <Monica.Peppin@kljeng.com>
Sent: Tuesday, March 17, 2026 12:22 PM
To: Raley, Jim <Jim.Raley@dvn.com>
Cc: Will Harmon <will.harmon@kljeng.com>
Subject: [EXTERNAL] nAPP2603644264 Muskie 23 CTB 5 Liner Inspection Notification

Jim,

Please see the below liner inspection notification for the Muskie 23 CTB 5. The contractor called with confirmation of the liner being ready for inspection last Thursday. Let me know if I need to change the time or day for the inspection. It is scheduled for Friday March 20, 2026 at 10:30 AM.

Liner Inspection

What is the liner inspection surface area in square feet	17,187
Have all the impacted materials been removed from the liner	Yes
Liner inspection date pursuant to Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC	2/20/2026
Time liner inspection will commence	1030AM
Please provide any information necessary for observers to liner inspection	Monica Peppin 575.909.3418
Please provide any information necessary for navigation to liner inspection site	32.033148,-103.435555
Incident	nAPP2603644264

Thank you,
Monica

Monica Peppin, A.S.
Environmental Specialist II



575-213-9010 Direct

575-909-3418 Cell

Carlsbad, NM 88220

kljeng.com



[Book time to meet with me](#)

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

QUESTIONS

Action 582264

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 582264
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2603644264
Incident Name	NAPP2603644264 MUSKIE 23 CTB 5 @ FAPP2317134046
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Facility	[fAPP2317134046] MUSKIE 23 CTB 5

Location of Release Source	
<i>Please answer all the questions in this group.</i>	
Site Name	MUSKIE 23 CTB 5
Date Release Discovered	02/04/2026
Surface Owner	Federal

Incident Details	
<i>Please answer all the questions in this group.</i>	
Incident Type	Produced Water 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	
<i>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.</i>	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure Valve Produced Water Released: 56 BBL Recovered: 56 BBL Lost: 0 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
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)	Leaking valve allowed fluids to be released in lined secondary containment.

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QUESTIONS, Page 2

Action 582264

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 582264
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
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	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
<i>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.</i>	

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: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 05/06/2026
--	--

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QUESTIONS, Page 3

Action 582264

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 582264
	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	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between ½ and 1 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Greater than 5 (mi.)
Any other fresh water well or spring	Greater than 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between ½ and 1 (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	No

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
<i>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.</i>	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	Yes
<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>	
On what estimated date will the remediation commence	03/20/2026
On what date will (or did) the final sampling or liner inspection occur	03/20/2026
On what date will (or was) the remediation complete(d)	03/20/2026
What is the estimated surface area (in square feet) that will be remediated	17178
What is the estimated volume (in cubic yards) that will be remediated	0

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 582264

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 582264
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
<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>	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
<i>(Select all answers below that apply.)</i>	
Is (or was) there affected material present needing to be removed	Yes
Is (or was) there a power wash of the lined containment area (to be) performed	Yes
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: James Raley Title: EHS Professional Email: jim.raley@dvsn.com Date: 05/06/2026
<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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QUESTIONS, Page 6

Action 582264

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 582264
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Liner Inspection Information	
Last liner inspection notification (C-141L) recorded	563835
Liner inspection date pursuant to Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC	03/20/2026
Was all the impacted materials removed from the liner	Yes
What was the liner inspection surface area in square feet	17187

Remediation Closure Request	
<i>Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.</i>	
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	Yes
What was the total surface area (in square feet) remediated	17178
What was the total volume (cubic yards) remediated	0
Summarize any additional remediation activities not included by answers (above)	Liner Inspected

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: James Raley Title: EHS Professional Email: jim.raley@dmv.com Date: 05/06/2026
--	--

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CONDITIONS

Action 582264

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 582264
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	5/13/2026