
January 6, 2026

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

SUBJECT: Liner Inspection and Closure Report for Muskie 23 CTB 5 –December 16, 2025 Site Visit

Incident IDs: nAPP2529328087/nAPP2530747282
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 December 16, 2025. The inspection followed the release of two produced water incidents that occurred on October 17, 2025 (Incident ID nAPP2529328087) and November 2, 2025 (Incident ID nAPP2530747282).

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

INCIDENT ID nAPP2529328087

On October 17, 2025, a Devon lease operator discovered a pinhole leak in the piping on a separator in the secondary containment, resulting in the release of approximately 35 barrels (bbls) of produced water. On October 20, 2025, 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 October 17, 2025, 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 October 23, 2025, 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.

INCIDENT ID nAPP2530747282

On November 2, 2025, a Devon lease operator discovered a vict clamp failure on a produced water line inside the secondary containment, resulting in the release of approximately 7 bbls of produced water. The

NOR for this release was submitted on November 3, 2025. As the incident did not exceed the 25 bbl threshold, it was not classified as a major release. A Form C-141 was submitted on November 4, 2025, via the NMOCD Portal.

Immediate Response Actions

For both releases, the operator completed the following initial actions:

- Isolated and eliminated the source of the release.
- Photographically documented the affected area, including secondary containment, liner, tanks, and equipment.
- Estimated the volume released.
- Recovered released fluids to the extent practicable.

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 is 0.9 miles northwest; the closest playa and wetland 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 is C-04856-POD1, which is used to reference Depth to Groundwater (DTGW) is located 0.18 miles southwest on an adjacent well pad. The POD is identified as a temporary borehole/monitor well used to determine depth to groundwater. The well record indicates that the temporary borehole was drilled to a depth of 105 ft bgs, and no groundwater was encountered. The nearest water source, a domestic well used for stock watering purposes, is an NMOSE POD, C-02295, located 5.11 miles northwest of the Site.

Karst potential for the Site is identified as non-karst, with the nearest area of medium karst potential located 4.97 miles to the northwest. The Site is in a FEMA flood hazard area identified as FEMA 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, sampling depths, 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)	nAPP2529328087 nAPP2530747282	Date Of Release(s)	10/17/2025 11/2/2025
Source of Release	Pinhole leak on piping of separator Vict clamp failure	Volume Released/Recovered	35 bbls/ 35 bbls pw 7 bbls/7 bbls pw
Specific Features	DTGW POD within 0.5-mile radius; No karst potential; No surface water within proximity; FEMA Zone D		

Liner Inspection Activities

For incident nAPP2529328087, a notification of inspection was submitted to Devon via email on November 14, 2025, with official notification submitted through the Operator's Electronic Permitting and Payment Portal on the same date. A subsequent official notification was submitted on November 12, 2025.

The inspection was completed as planned and met the applicable inspection criteria. However, photographic records from the inspection were not retrievable after completing the inspection, requiring a follow-up inspection of the Site. Email notifications describing the issue and the need for an additional inspection were submitted in accordance with 19.15.29.11(A)(5)(a)(iii) NMAC. Copies of these notifications are included in **Appendix C**.

On December 11, 2025, a second official notification was submitted for both nAPP2529328087 and nAPP2530747282 for an inspection to occur on December 16, 2025, in accordance with NMAC 19.15.29.11(A)(5)(a)(iii).

KLJ Environmental Specialists conducted the site visit on December 16, 2025 and performed the liner inspection. During the visit, 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 incidents nAPP2529328087 and nAPP2530747282.

Based on the site assessment and activities conducted, Devon respectfully requests closure of incidents nAPP2529328087 and nAPP2530747282 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

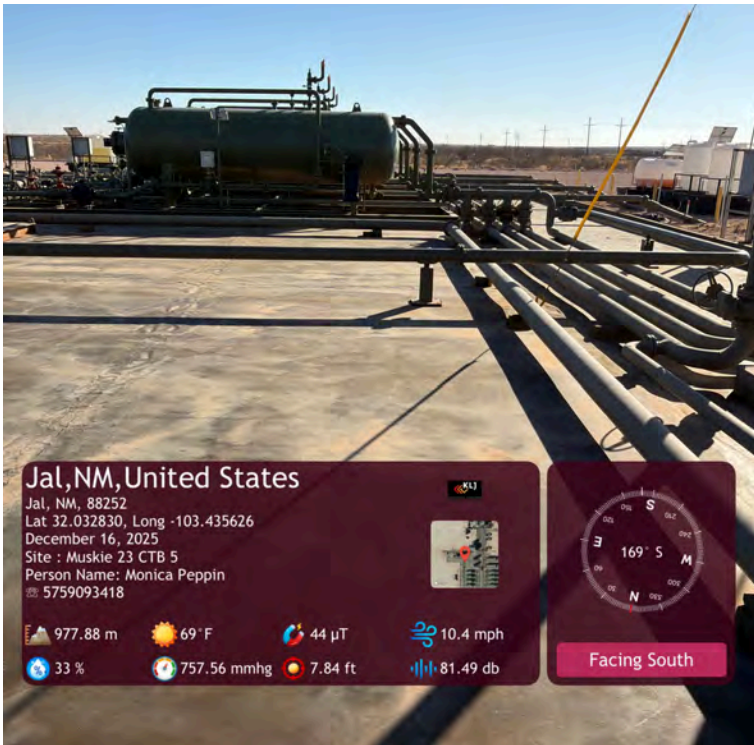
Client:	Devon Energy	Date:	December 16, 2025
Site:	Muskie 23 CTB 5	Arrival Time:	1:21 PM
Lat/Long:	32.033148, -103.435555	 <p>Photo of Lease Sign</p>	
Client Contact:	Jim Raley		
Land Status:	BLM		
County:	Lea		
Lease ID:	NMNM100568		
Facility ID:	fAPP2317134046		
Incident ID's:	nAPP2529328087 nAPP2530747282		

Observations and Field Notes

- 1:24 PM - Arrive on site. Observe site conditions for potential hazards and complete safety paperwork.
- 1:26 PM - Begin inspection by inspecting liner visually by walking around containment. Inspection consists of both the tank battery containment and separators/heaters containment.
- 1:29 PM - Liner surface is clean, intact, and in good condition.
- 1:30 PM - No rips, tears, punctures, or areas of concern are seen. Seams do not show any signs of separation or evidence of degradation where stress or weathering would have an effect.
- 1:32 PM - Photos taken from all cardinal directions, in between tanks, and various angles of equipment.
- 1:40 PM - Liner in both containments pass inspection and meet compliance standards.



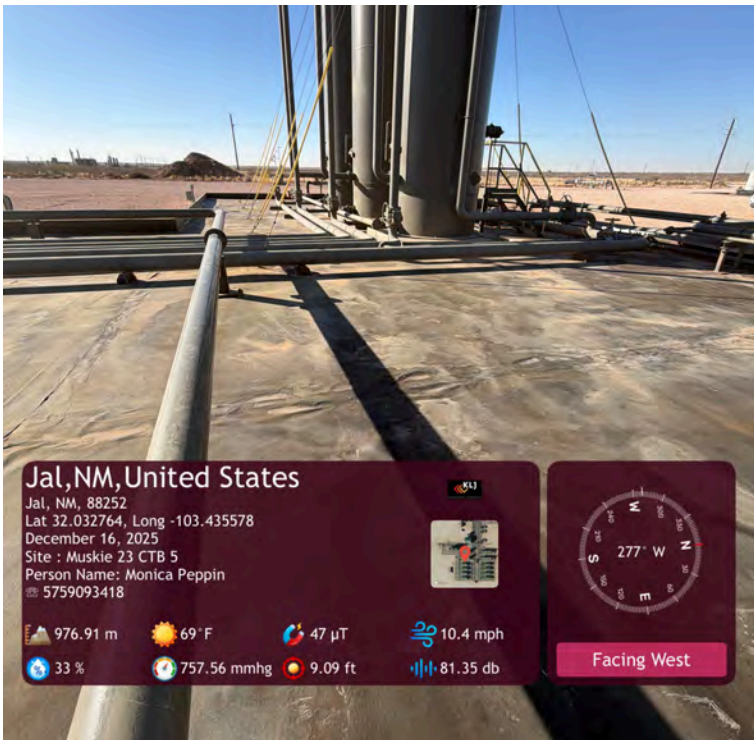
Photolog



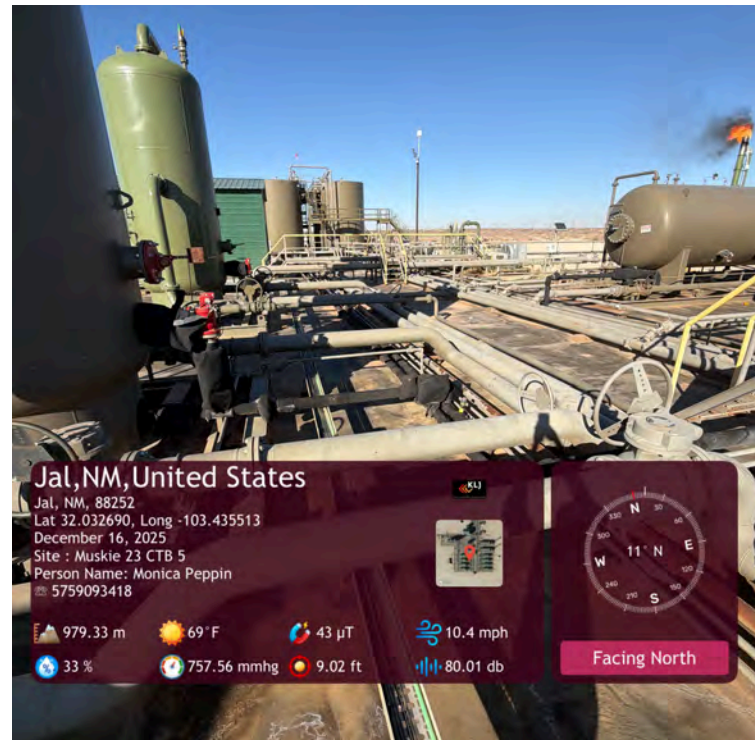
Northwest area of liner in separator/heater containment.



Liner in open area of separator containment.



Open section of liner towards separators.



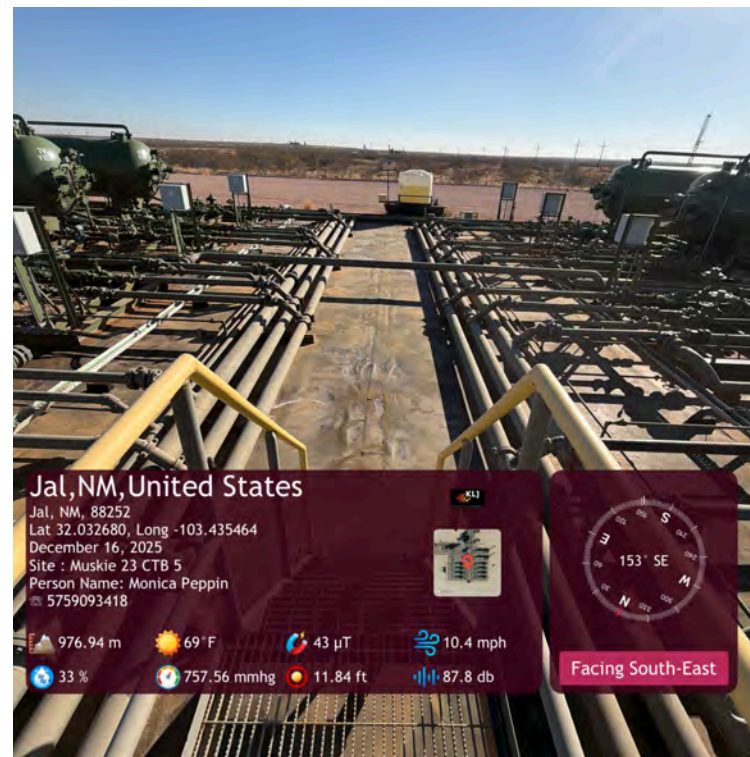
Liner under piping towards middle.



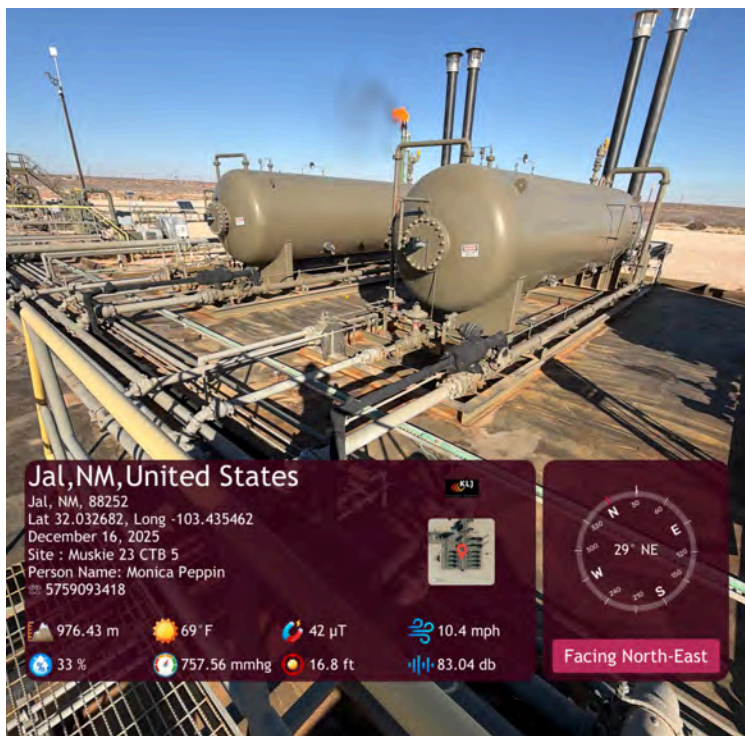
Photolog



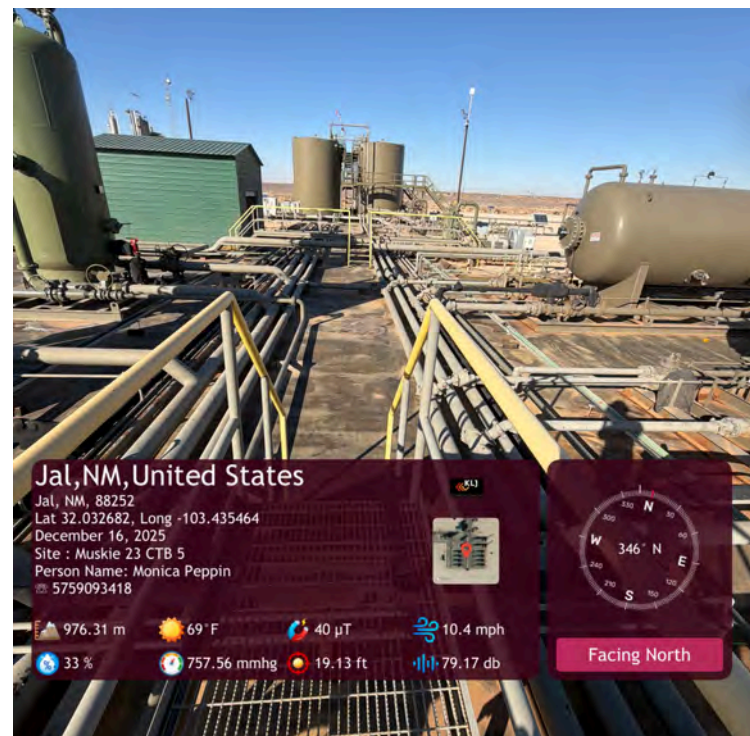
Liner in open area near separators.



Middle area of liner facing south.



Liner in northeast corner.



Middle area of liner looking towards at tank battery containment.



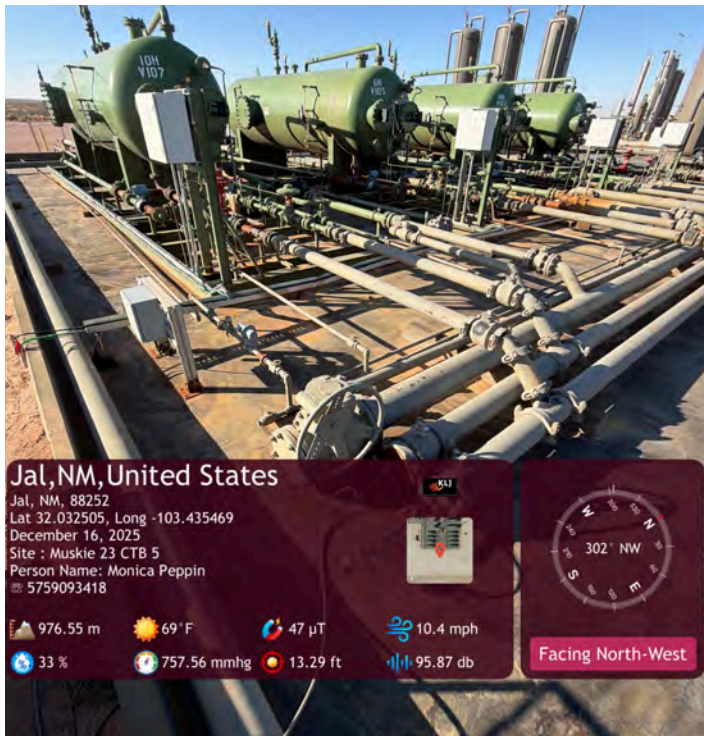
Photolog



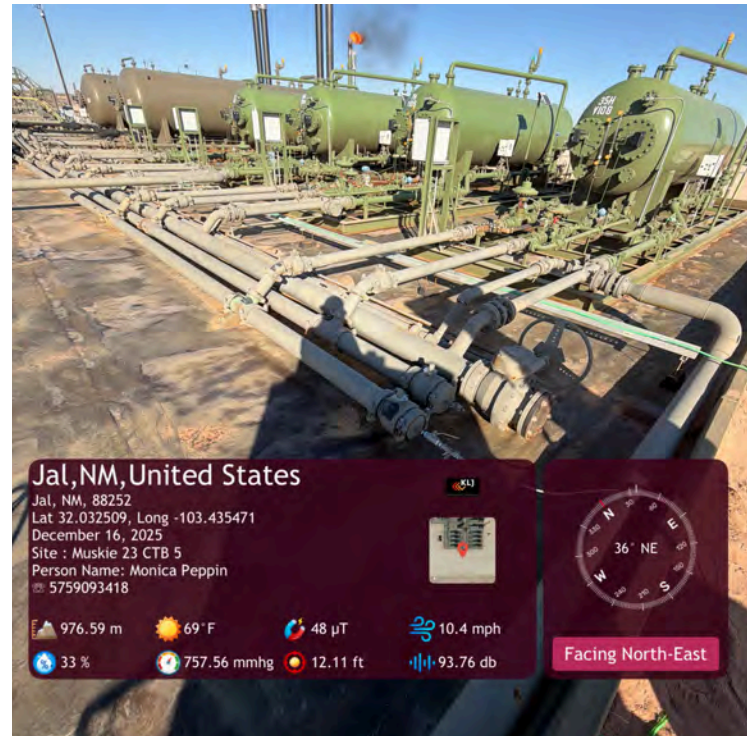
Liner in northwest area of containment.



Liner under heaters and flowlines from middle area.



Liner in southwest corner.



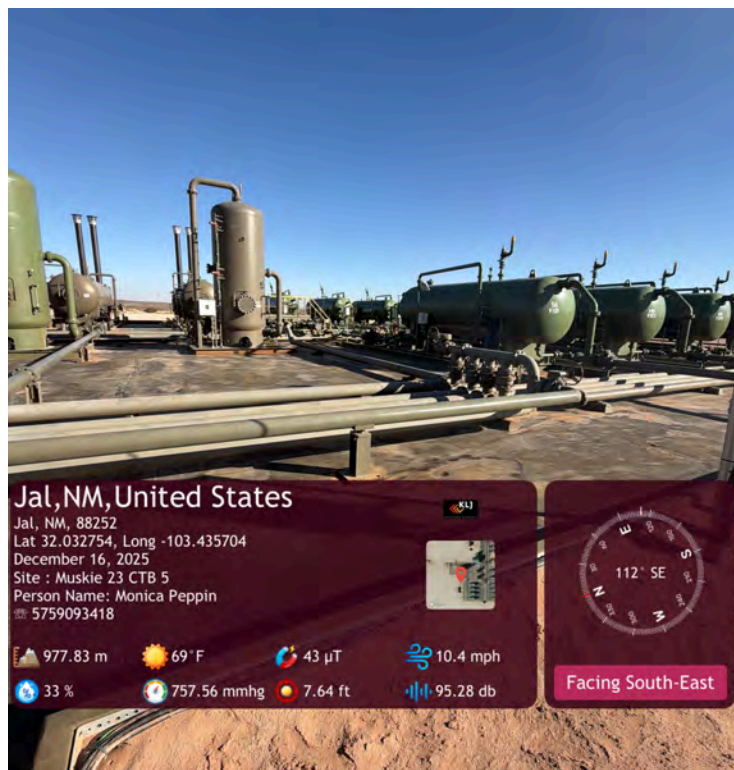
Liner under heaters in southeast corner.



Photolog



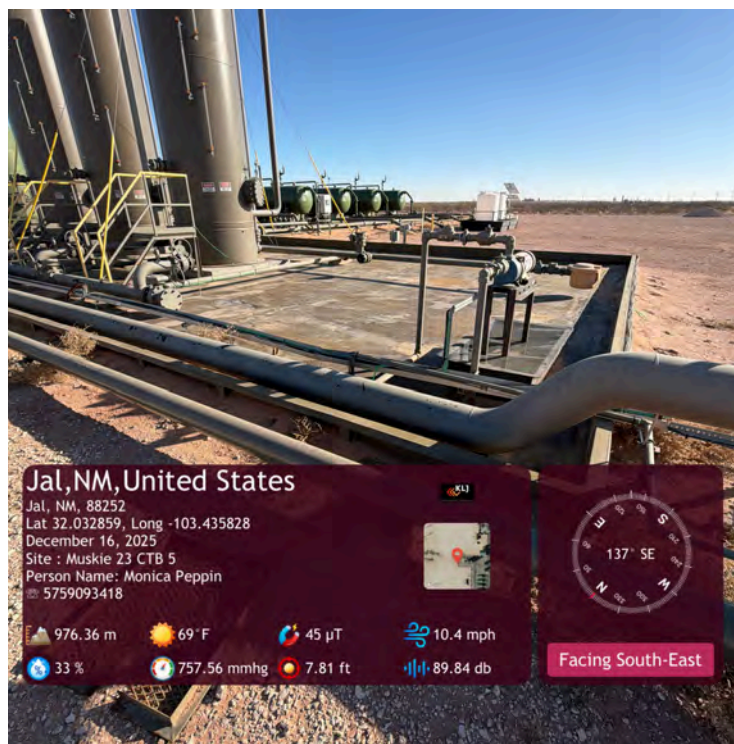
South wall area of containment.



Liner from northwest corner.



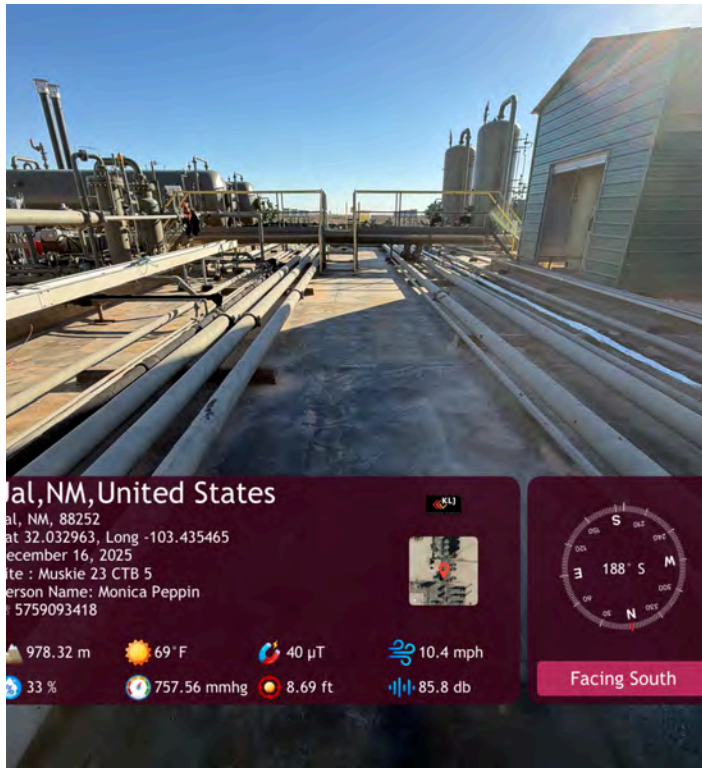
Liner view from far west end.



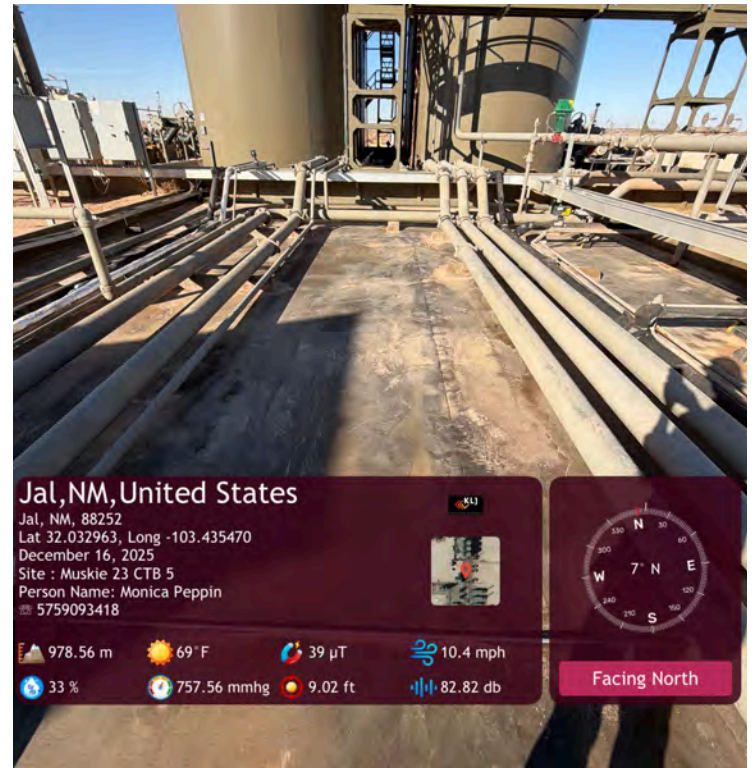
West end of separator containment.



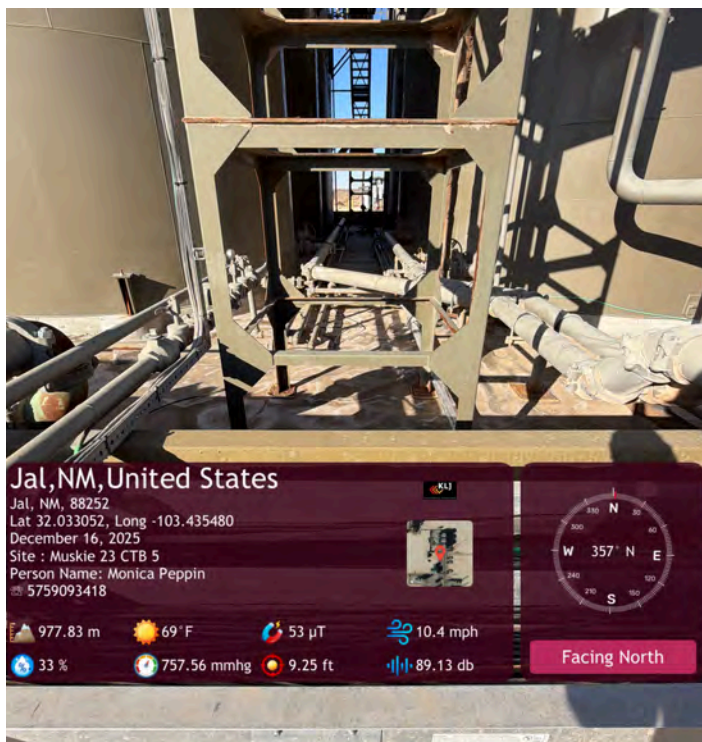
Photolog



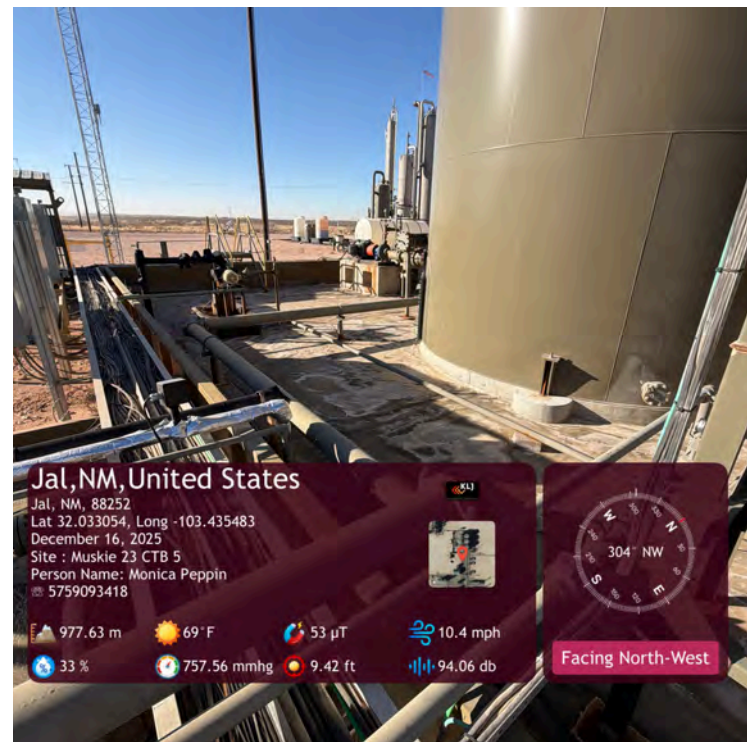
Liner in separator/heater area.



Liner near tank battery containment.



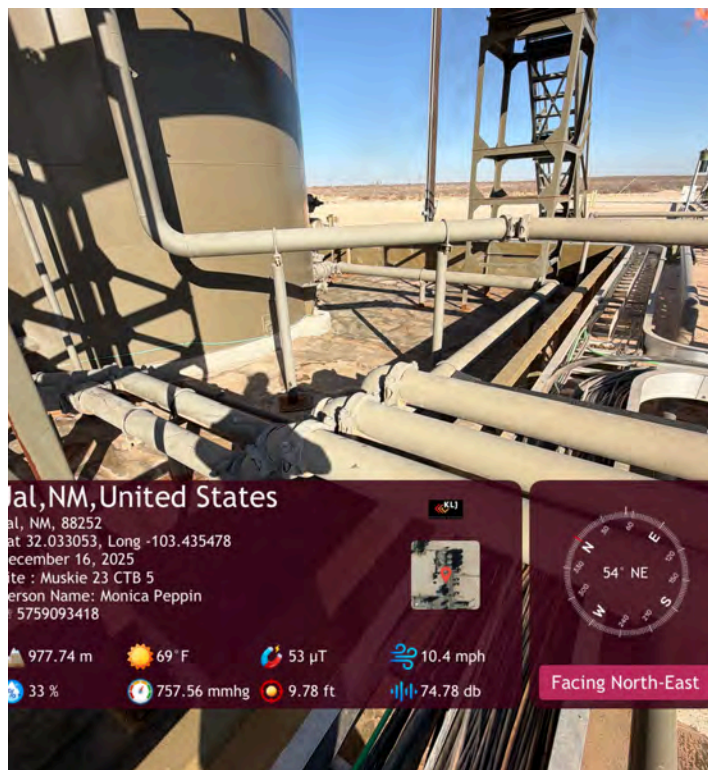
Liner between tanks under catwalk.



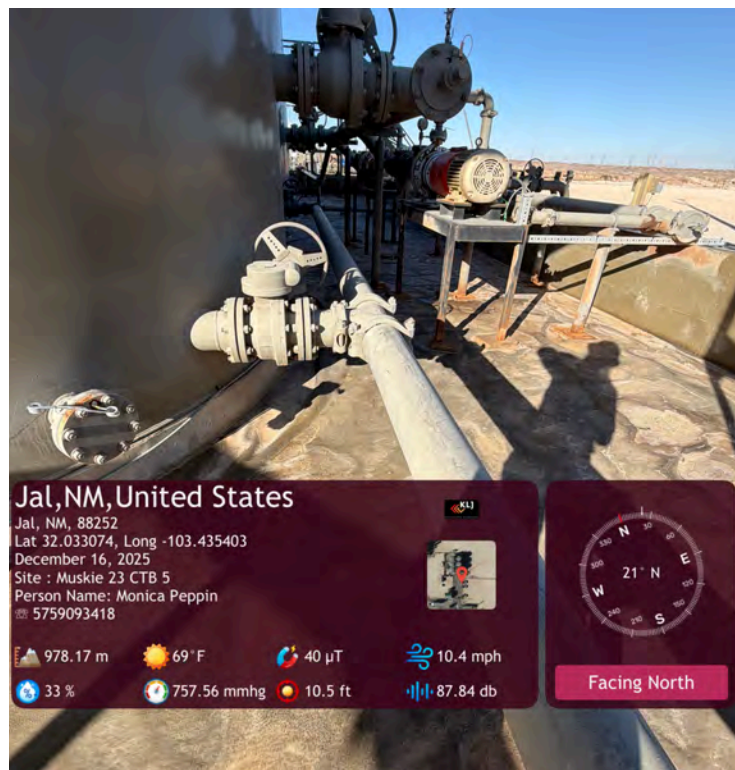
Liner in southwest corner of tank battery containment.



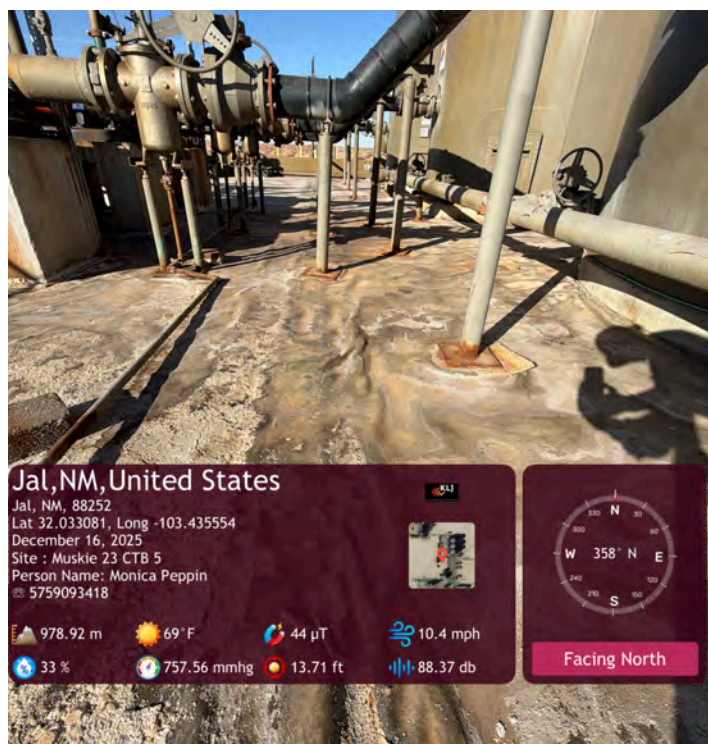
Photolog



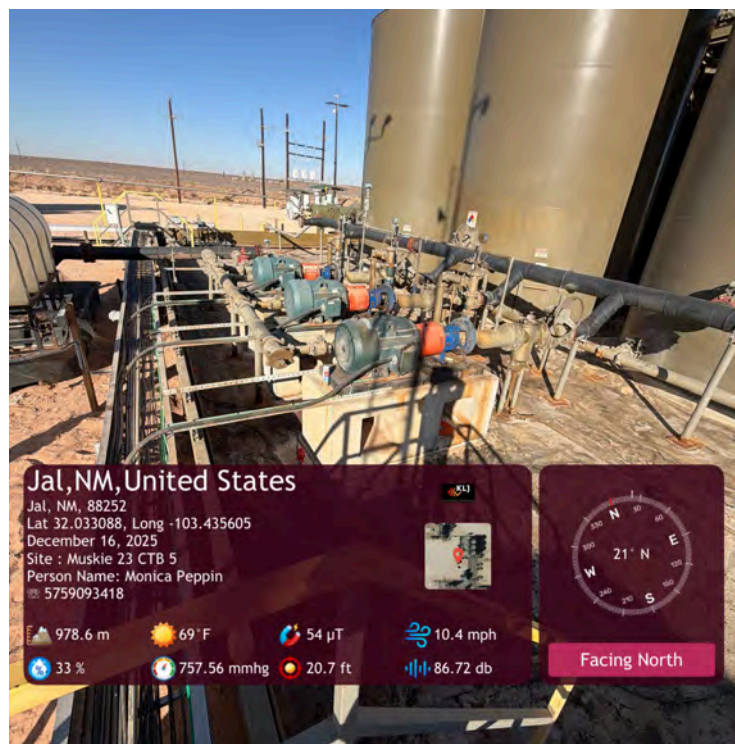
Liner on south end of containment.



Liner in southeast corner.



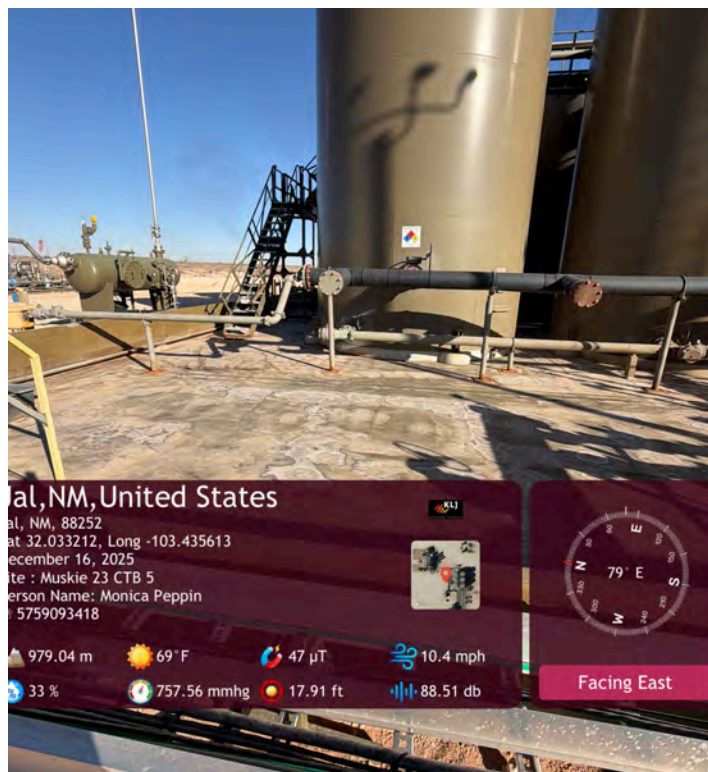
Liner near water transfer pumps.



West side of containment.



Photolog



Tank Battery containment.



Tank Battery containment.

Additional Notes & Recommendations

- Inspection complete. No further action of recommendations.
- Site is within compliance of regulations.

Acknowledgement & Signature

Technician: Monica Peppin

Date: December 16, 2025

Signature:

Departure Time: 2:15 PM



Additional Notes & Recommendations

- Inspection complete. Liner meets standards and is in compliance.
- Finish uploading field notes and photolog report for supporting documentation to request closure.
- Complete closure report and submit for regulatory review once internal review is complete and sent to Devon for review.

Acknowledgement & Signature

Technician:

Date:

Signature:

Departure
Time:

APPENDIX B

CLOSURE CRITERIA RESEARCH



Muskie 23 CTB 5

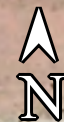
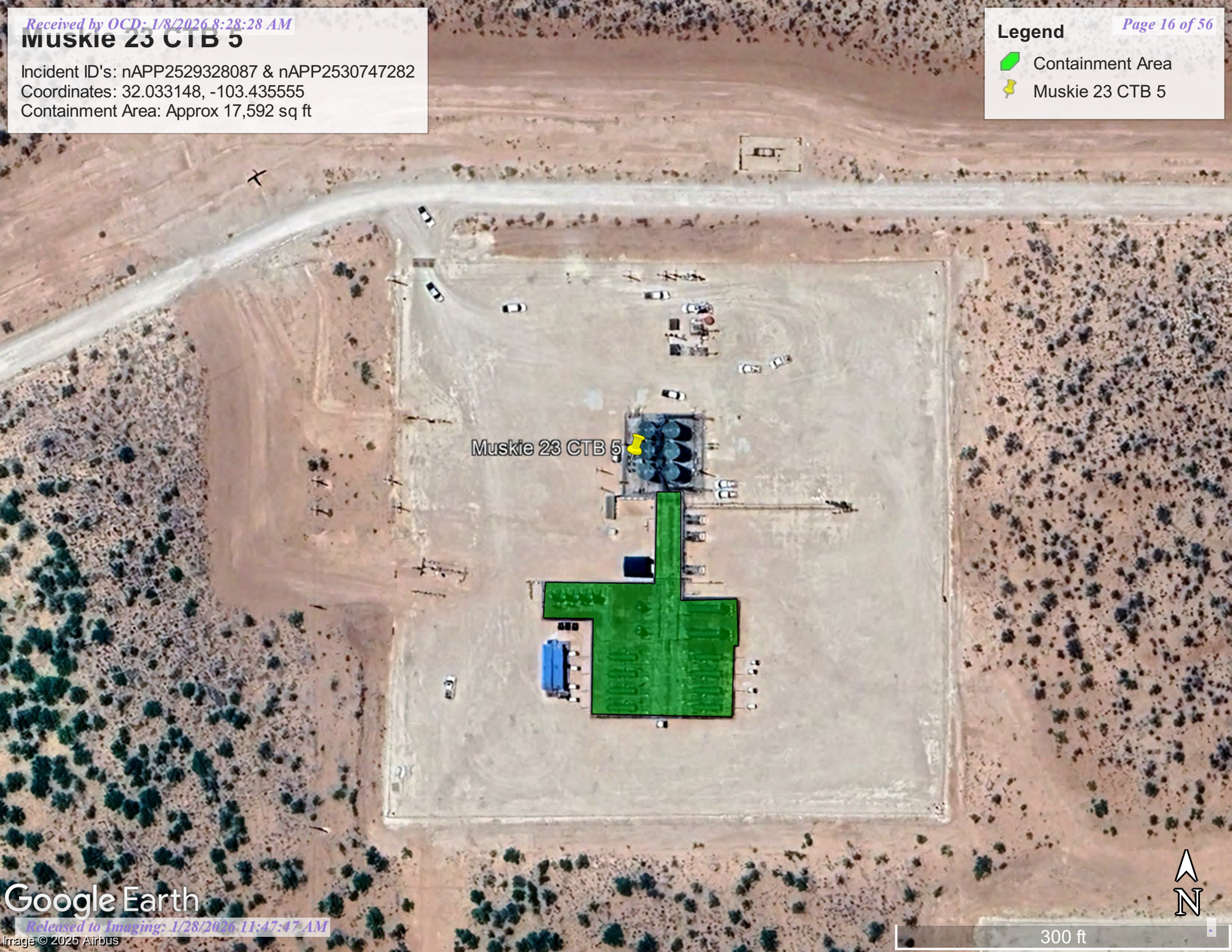
Incident ID's: nAPP2529328087 & nAPP2530747282

Coordinates: 32.033148, -103.435555

Containment Area: Approx 17,592 sq ft

Legend

-  Containment Area
-  Muskie 23 CTB 5



Muskie 23 CTB 5 - DTGW Proximity Map

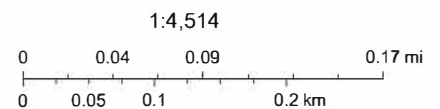


7/4/2025, 6:40:00 AM

- 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 NM			
					ZIP 88240			
WELL LOCATION (FROM GPS)	DEGREES LATITUDE		MINUTES 32	SECONDS 01	51.64	N		
	LONGITUDE		103	26	14.78	W		
* ACCURACY REQUIRED: ONE TENTH OF A SECOND								
* DATUM REQUIRED: WGS 84								
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	-	-	-	-
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. C-4856-POD 1	POD NO. 1	TRN NO. 763064
LOCATION Mon 26.34.23.232	WELL TAG ID NO. 	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:					TOTAL ESTIMATED WELL YIELD (gpm): 0.00	
<input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER - SPECIFY:						
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. <div style="text-align: right;">OCD DII AUG 1 2024 PM 1:43</div>					
	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	
SIGNATURE OF DRILLER / PRINT SIGNEE NAME						

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 04/30/2019)

FILE NO. C-4856-POD 1	POD NO. 1	TRN NO. 763064
LOCATION Mon 26.34.23.232	WELL TAG ID NO. _____	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, appearing to read "Maret Thompson".

Maret Thompson
(575) 622-6521

drywell

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

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.

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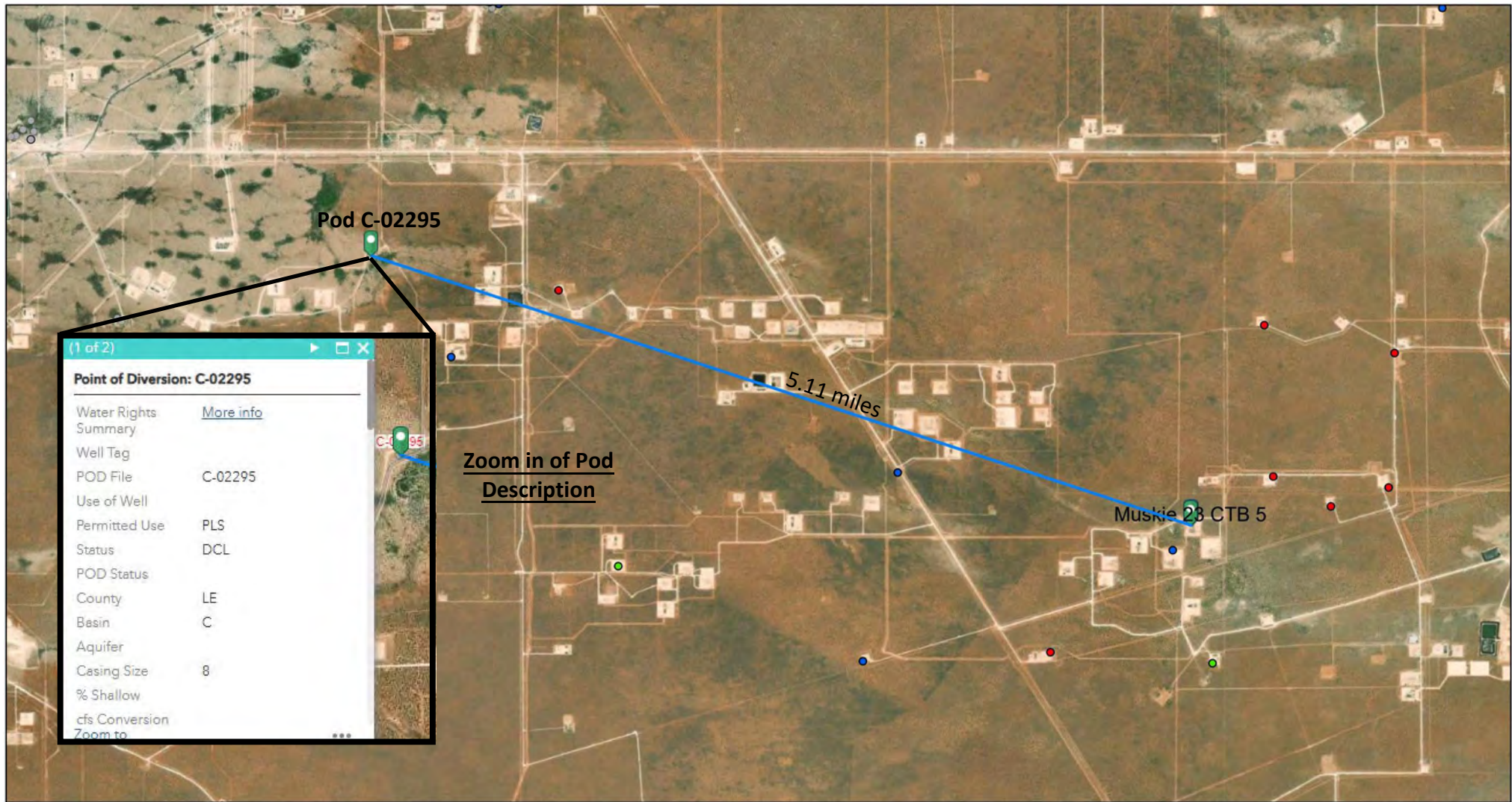
Sincerely,

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

Maret Thompson
(575) 622-6521

drywell

Muskie 23 CTB 5 - Livestock Watering Pod Proximity Map

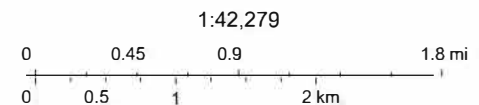


7/4/2025, 6:55:48 AM

— Override 1
● Pending OSE District Boundary
 GIS WATERS PODs ● Plugged
● Active ●

Nearest Domestic Well
 OSE Pod C-02295
Pod Depth to Groundwater
 200 ft bgs

Well Type
 Livestock Watering
Distance
 5.11 miles

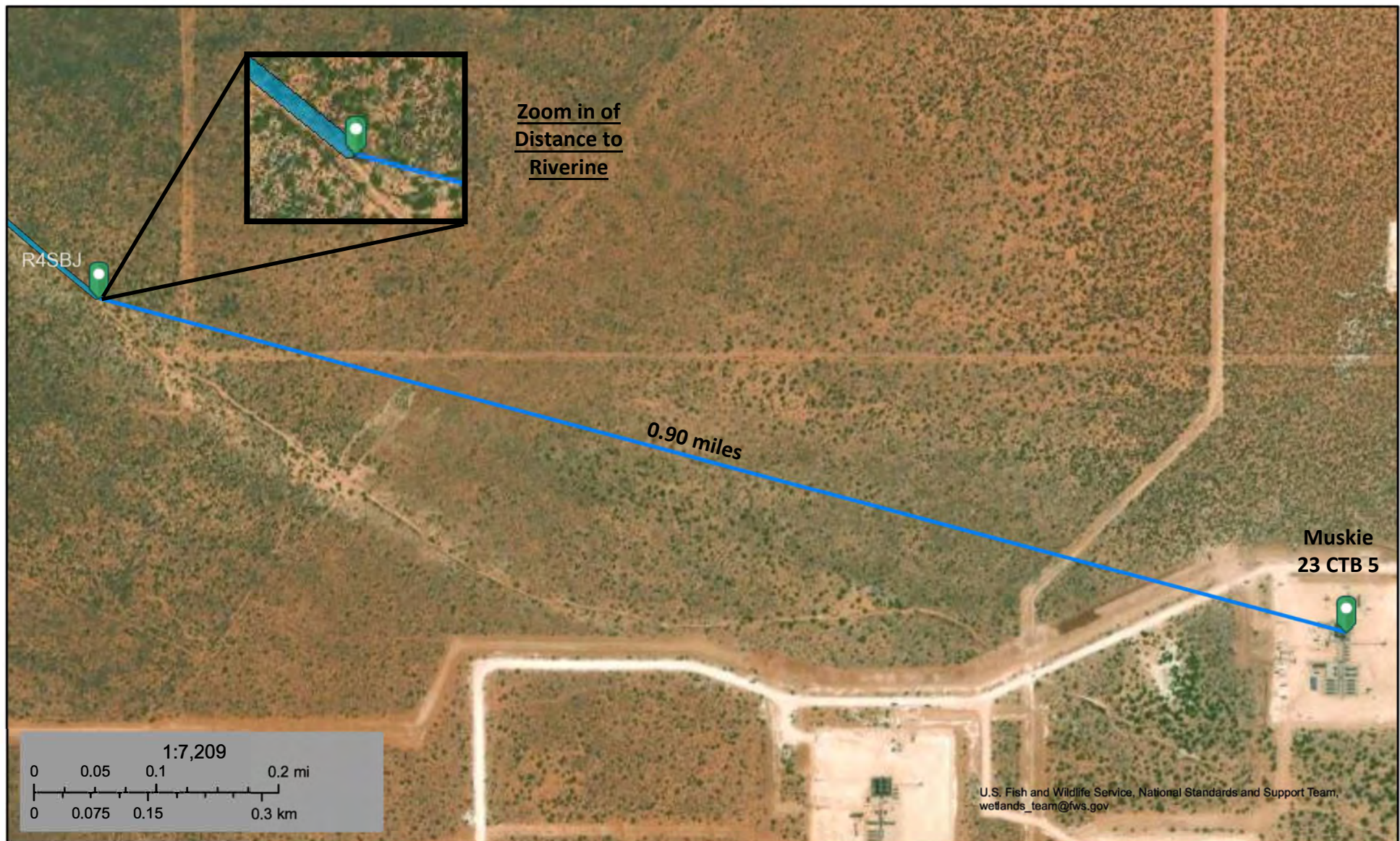


Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS,
 (c) OpenStreetMap contributors, and the GIS User
 Community, Maxar

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



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



July 1, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

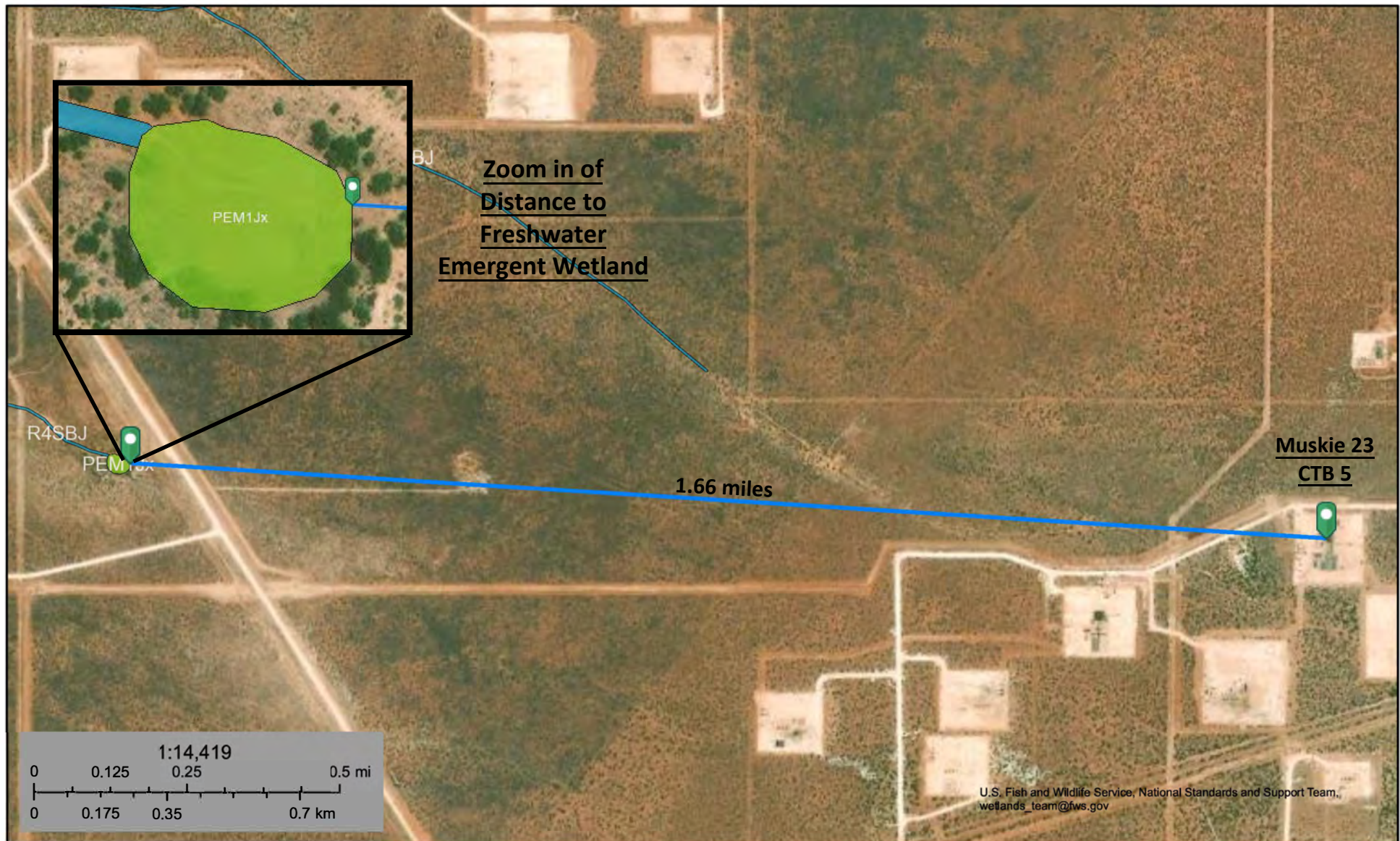
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- 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.



Nearest Playa and Wetland: Emergent Wetland
Distance: 1.66 miles



July 1, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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




- Lake
- Other
- Riverine

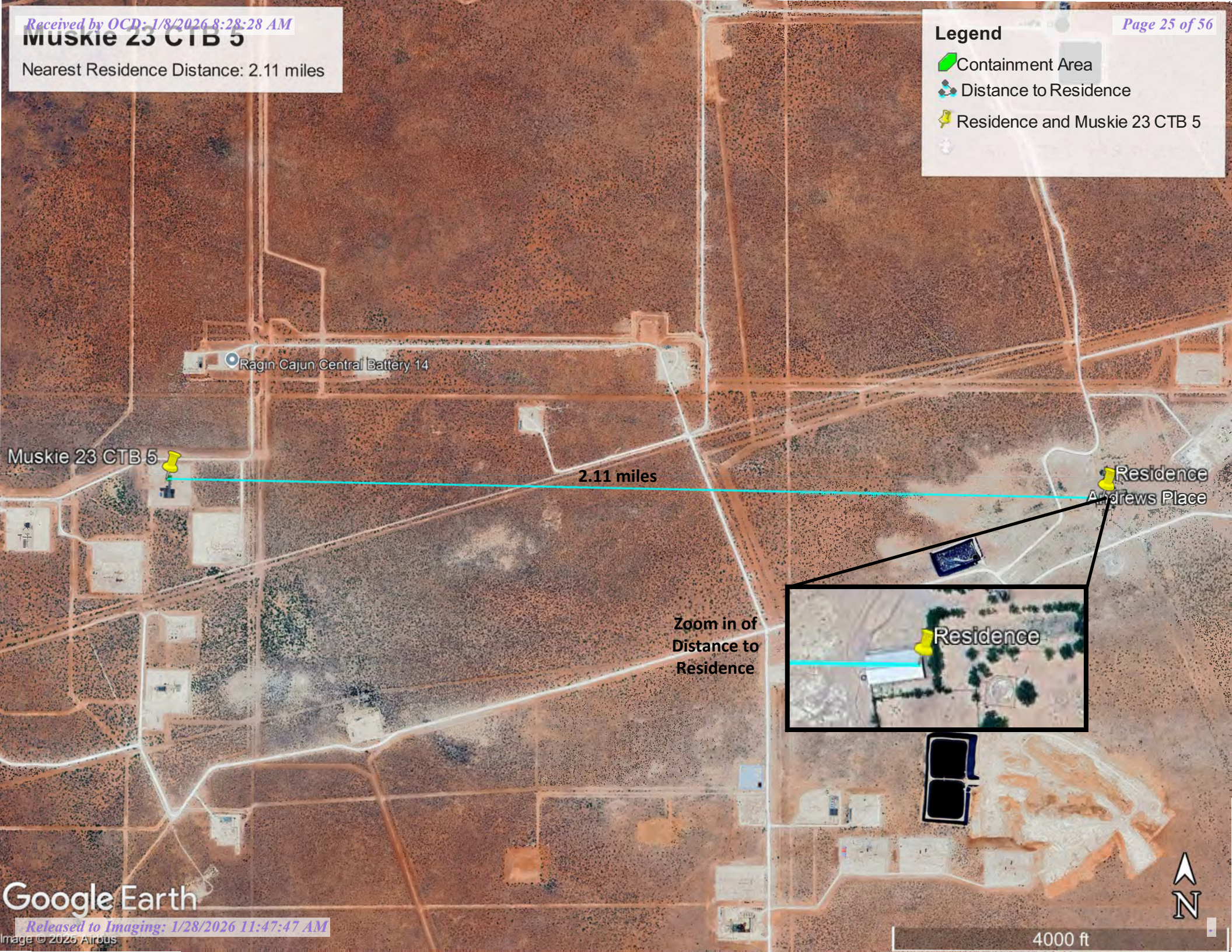
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Muskie 23 CTB 5

Nearest Residence Distance: 2.11 miles

Legend

-  Containment Area
-  Distance to Residence
-  Residence and Muskie 23 CTB 5






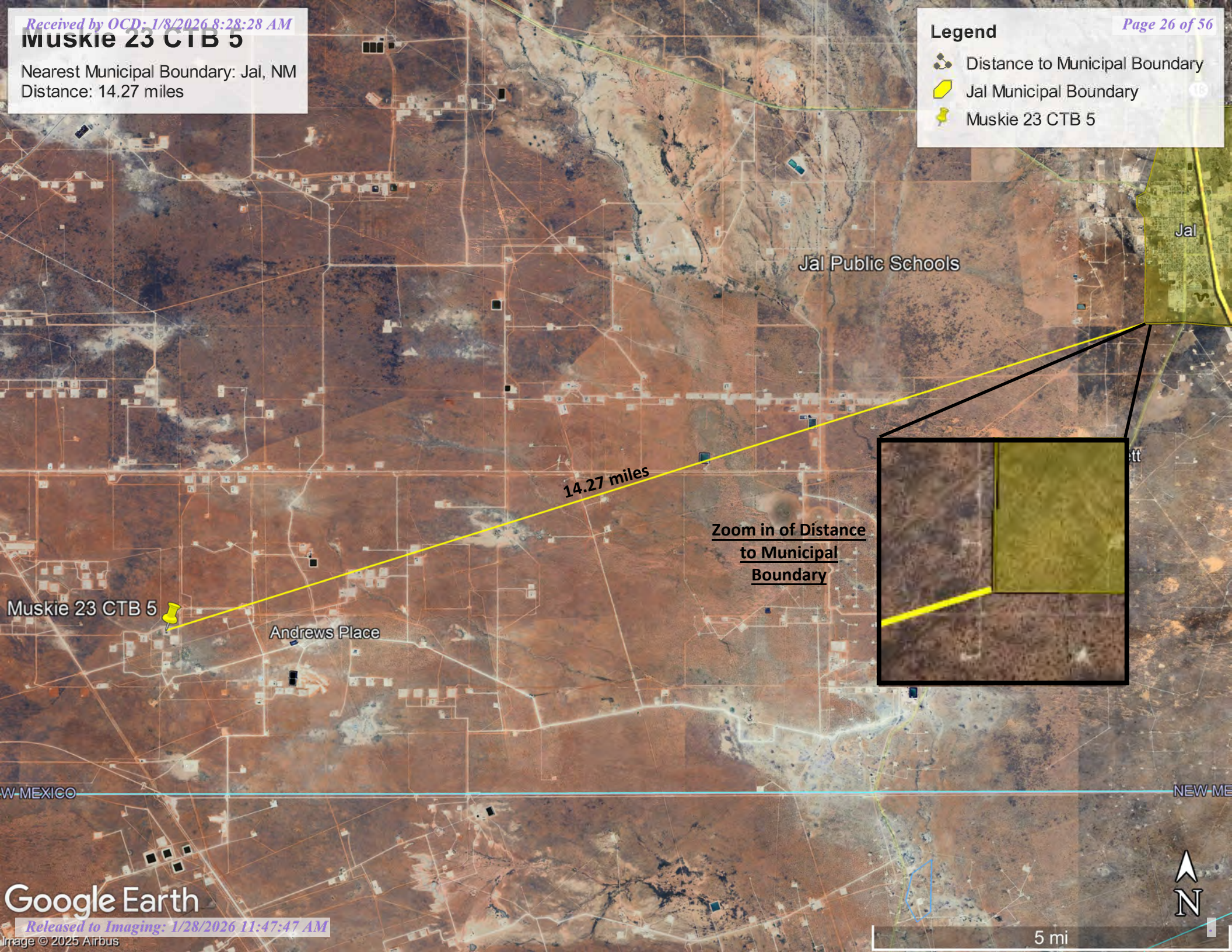
Google Earth

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



Zoom in of Distance
to Municipal
Boundary

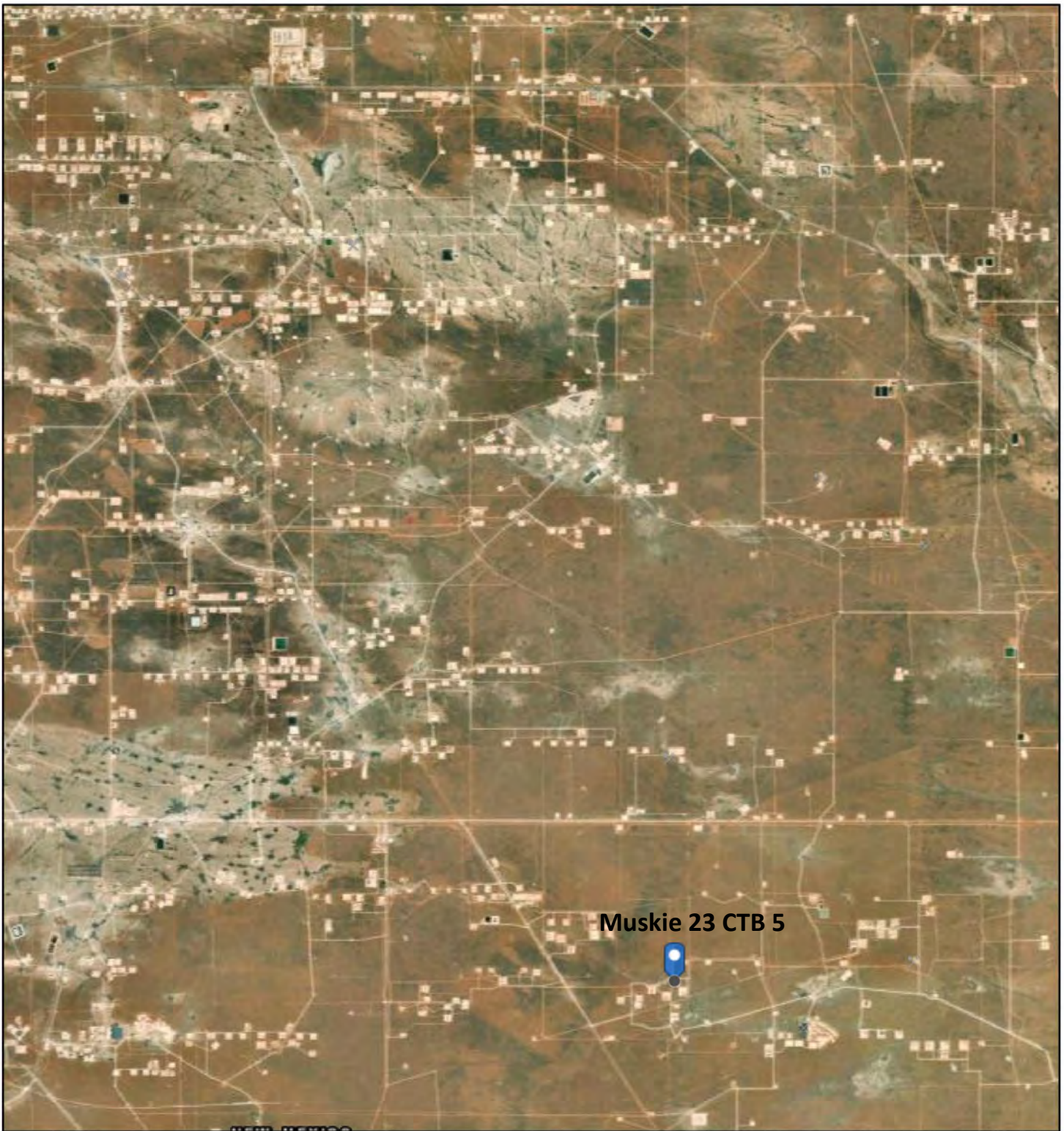
W-MEXICO

NEW ME

Google Earth

5 mi

Muskie 23 CTB 5 - Mines Proximity

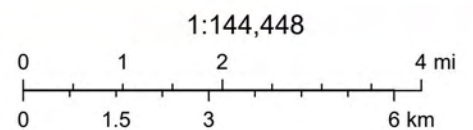


7/17/2025, 10:20:56 AM

Registered Mines

- ✕ Aggregate, Stone etc.
- ✕ Aggregate, Stone etc.

**No Subsurface Mines
within 5-mile Radius**



Esri, HERE, Garmin, Earthstar Geographics



Muskie 23 CTB 5 - Karst Potential & Distance Map

0 0.2 0.4 0.8
mi



New Mexico State Land Office

Disclaimer:

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Data pertaining to New Mexico State Trust Lands are provisional and subject to revision, and do not constitute an official record of title. Official records may be reviewed at the New Mexico State Land Office in Santa Fe, New Mexico.

Released to Imaging: 1/28/2026 11:47:47 AM
Map Created: 7/16/2025

● User drawn points

Karst_Potential_NM

Potential

Critical

High

Medium

Karst Potential

None

Nearest Karst Feature

Medium Karst

Distance

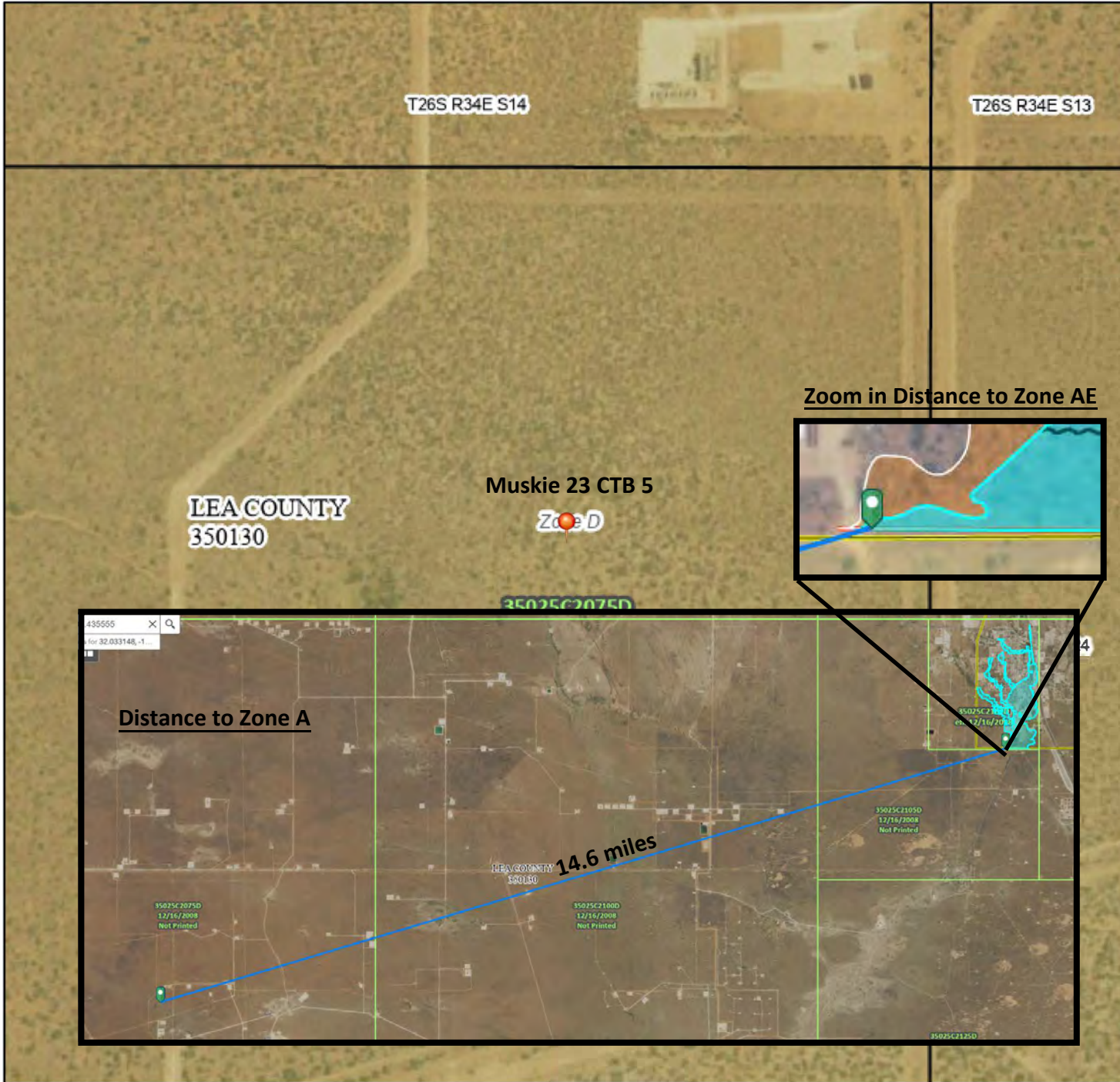
4.97 miles



National Flood Hazard Layer FIRMMette



103°26'27"W 32°2'15"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
		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
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped

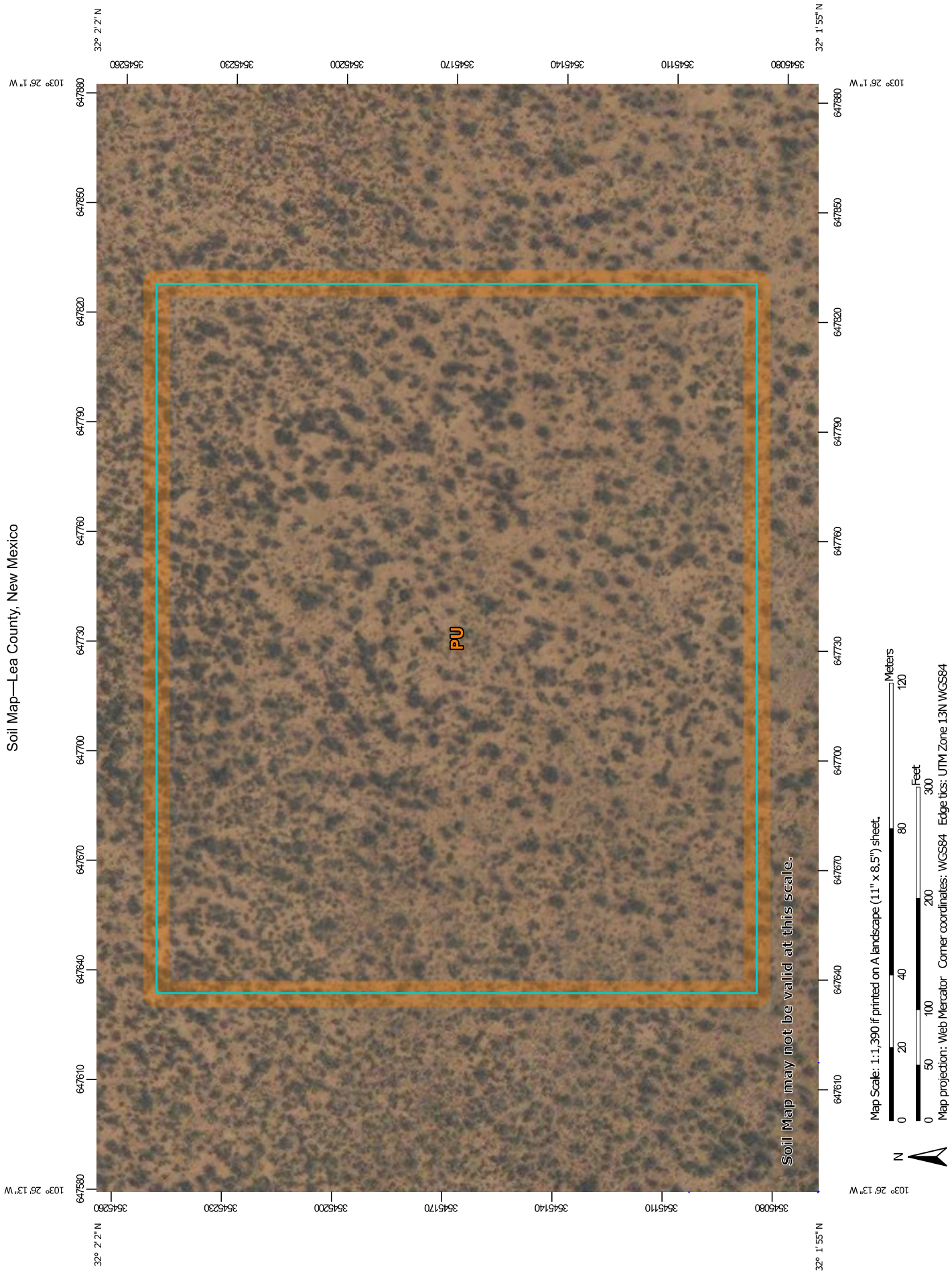


The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 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.



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/climsmnm.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

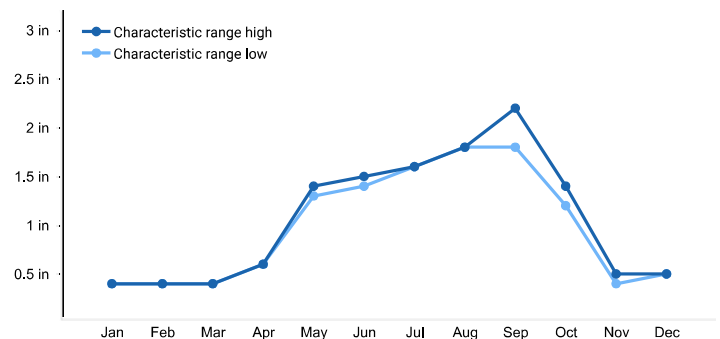


Figure 2. Monthly precipitation range

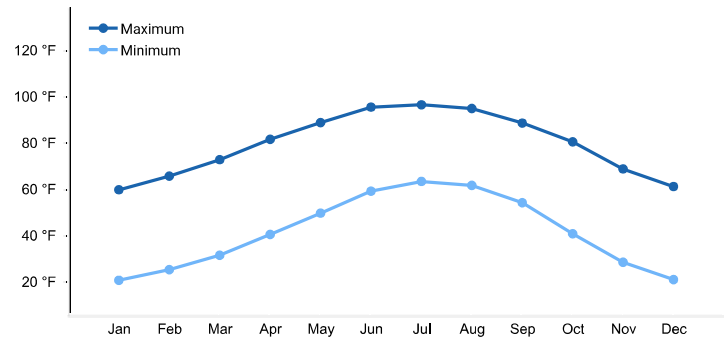


Figure 3. Monthly average minimum and maximum temperature

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

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

Ecological dynamics

Overview

The Loamy Sand site intergrades with the Deep Sand and Sandy

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

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.

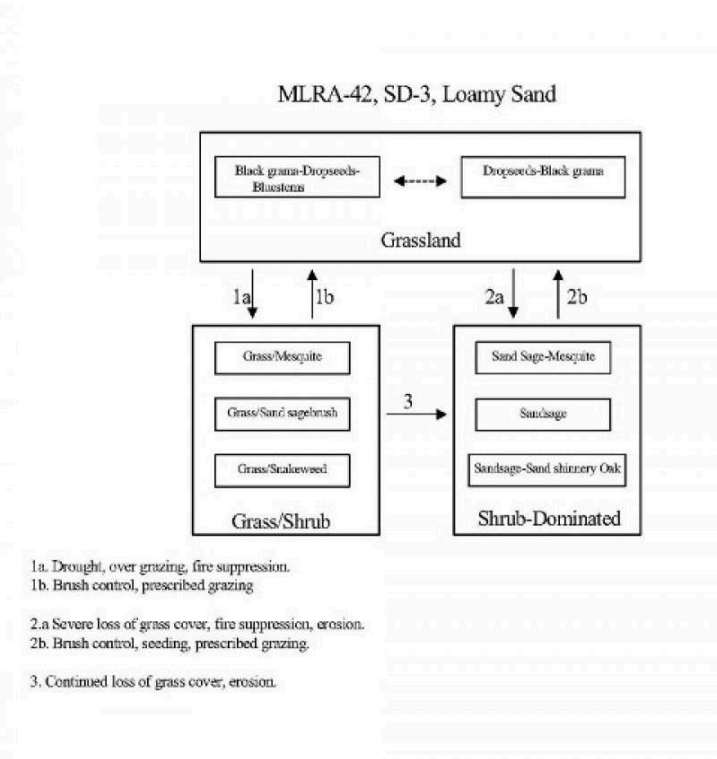
Table 5. Annual production by plant type

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%

Plant Communities and Transitional Pathways (diagram):



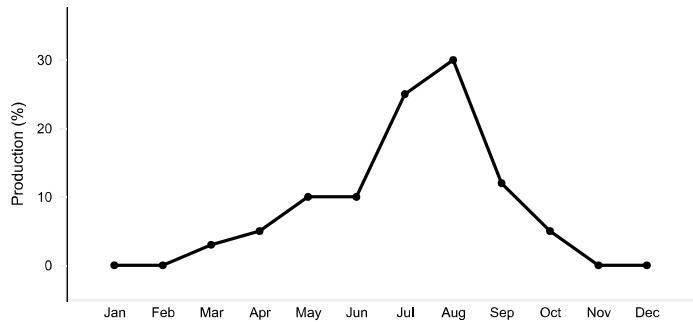


Figure 5. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community.

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 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 vulpiseta</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

Page 42 of 56

 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] Re: MUSKIE 23 CTB 5 -Pressure Washing

From Raley, Jim <Jim.Raley@dvn.com>
Date Wed 2025-11-12 9:53 AM
To Monica Peppin <Monica.Peppin@kljeng.com>
Cc Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>

Submitted 11/12/2025
nAPP2530747282
nAPP2529328087

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



From: Monica Peppin <Monica.Peppin@kljeng.com>
Sent: Wednesday, November 12, 2025 9:47 AM
To: Raley, Jim <Jim.Raley@dvn.com>
Cc: Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>
Subject: Re: [EXTERNAL] Re: MUSKIE 23 CTB 5 -Pressure Washing

Yes sir. See below for this Friday.

Liner Inspection

What is the liner inspection surface area in square feet	17,598
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	11/14/2025
Time liner inspection will commence	11:00 AM
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	32.0298958, -103.4372861
Incident	nAPP2522447834 nAPP2530747282

Also, the lease sign in the photo is incorrect on the lat and long. Lease sign has N 32 15' 17.2764" W 104 1' 34.572 which converts to 32.254799, -104.02627. These coordinates take you to a road near the pecos river alot closer to carlsbad. The above coordinates are from the OCD facility information that I used to get the containment square footage.

Let me know if you need anything else.

Thank you!

MP

From: Raley, Jim <Jim.Raley@dvn.com>
Sent: Wednesday, November 12, 2025 9:06 AM
To: Monica Peppin <Monica.Peppin@kljeng.com>
Cc: Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>
Subject: RE: [EXTERNAL] Re: MUSKIE 23 CTB 5 -Pressure Washing

Send me notification for these. I believe they are ready based on planning spreadsheet.

nAPP2529328087
nAPP2530747282

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



From: Raley, Jim
Sent: Wednesday, November 12, 2025 8:35 AM
To: Monica Peppin <Monica.Peppin@kljeng.com>
Cc: Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>
Subject: RE: [EXTERNAL] Re: MUSKIE 23 CTB 5 -Pressure Washing

Monica,
Please also inspect for nAPP2530747282 it at the same facility.

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



From: Raley, Jim
Sent: Thursday, October 30, 2025 1:06 PM
To: Monica Peppin <Monica.Peppin@kljeng.com>
Cc: Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>
Subject: RE: [EXTERNAL] Re: MUSKIE 23 CTB 5 -Pressure Washing

Proceed

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: Thursday, October 30, 2025 11:41 AM
To: Raley, Jim <Jim.Raley@dvn.com>
Cc: Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>
Subject: [EXTERNAL] Re: MUSKIE 23 CTB 5 -Pressure Washing

Afternoon Jim,

Just following up with you on the budget approval.

Let me know if there is anything else we can do.

Thanks,
Monica

From: Monica Peppin <Monica.Peppin@kljeng.com>
Sent: Tuesday, October 28, 2025 8:02 AM
To: Raley, Jim <Jim.Raley@dvn.com>
Cc: Will Harmon <will.harmon@kljeng.com>; Bob Raup <Bob.Raup@kljeng.com>
Subject: Re: MUSKIE 23 CTB 5 -Pressure Washing

We will get it taken care of! If you can just reply back to this email for the budget approval.

Project: Muskie 23 CTB 5
T/M not to exceed: \$5,000.00

Thank you,
MP

From: Raley, Jim <Jim.Raley@dvn.com>
Sent: Monday, October 27, 2025 6:59 AM
To: Eldridge, Suzann <Suzann.Eldridge@dvn.com>; Jimenez, Erik <Erik.Jimenez@dvn.com>; Martinez, Sara <Sara.Martinez@dvn.com>; Rich, Brittany <Brittany.Rich@dvn.com>; Sexton, Rob <Rob.Sexton@dvn.com>
Cc: Kayla Taylor <kayla.taylor@ghd.com>; Monica Peppin <Monica.Peppin@kljeng.com>
Subject: RE: MUSKIE 23 CTB 5 -Pressure Washing

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.

GHD,
Please disregard. Meant to send to another vendor.

KLJ,
Please inspect when clean.
21726039
nAPP2529328087

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



From: Raley, Jim
Sent: Monday, October 27, 2025 6:56 AM
To: Eldridge, Suzann <Suzann.Eldridge@dvn.com>; Jimenez, Erik <Erik.Jimenez@dvn.com>; Martinez, Sara <Sara.Martinez@dvn.com>; Rich, Brittany <Brittany.Rich@dvn.com>; Sexton, Rob <Rob.Sexton@dvn.com>
Cc: Kayla Taylor <kayla.taylor@ghd.com>
Subject: MUSKIE 23 CTB 5 -Pressure Washing

Rob,
Please add to pressure washing list.
21711232

GHD,
Please inspect when clean.
21726039
nAPP2529328087

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



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strictly prohibited. If you are not the intended recipient, please notify the sender immediately by return e-mail, and delete this message and any attachments from your system.



RE: [EXTERNAL] Muskie 23 CTB 5 Liner Inspection Notification nAPP2529328087 and nAPP2530747282

From Raley, Jim <Jim.Raley@dvn.com>
Date Thu 2025-12-11 1:47 PM
To Monica Peppin <Monica.Peppin@kljeng.com>
Cc Bob Raup <Bob.Raup@kljeng.com>; Will Harmon <will.harmon@kljeng.com>

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Submitted 12/11

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: Thursday, December 11, 2025 12:50 PM
To: Raley, Jim <Jim.Raley@dvn.com>
Cc: Bob Raup <Bob.Raup@kljeng.com>; Will Harmon <will.harmon@kljeng.com>
Subject: [EXTERNAL] Muskie 23 CTB 5 Liner Inspection Notification nAPP2529328087 and nAPP2530747282

Jim,

Here is the liner inspection notification for the Muskie 23 CTB 5 for both incidents.

Liner Inspection	
What is the liner inspection surface area in square feet	17,592
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	12/16/2025
Time liner inspection will commence	1300PM
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, -1033.435555
Incident	nAPP2529328087 nAPP2530747282

Let me know if any adjustments to the date and time are needed.

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

QUESTIONS

Action 541069

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 541069
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2529328087
Incident Name	NAPP2529328087 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

Please answer all the questions in this group.

Site Name	MUSKIE 23 CTB 5
Date Release Discovered	10/17/2025
Surface Owner	Federal

Incident Details

Please answer all the questions in this group.

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

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	Not answered.
Produced Water Released (bbls) Details	Cause: Equipment Failure Separator Produced Water Released: 35 BBL Recovered: 35 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)	Pinhole leak allowed fluids to lined containment, fully recovered. Major Notification made via email to (M. Bratcher, R. Romero) on 10/17/2025

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QUESTIONS, Page 2

Action 541069

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 541069
	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.
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: James Raley Title: EHS Professional Email: jim.raley@dvsn.com Date: 01/08/2026
--	---

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QUESTIONS, Page 3

Action 541069

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 541069
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
<i>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.</i>	
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 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 1 and 5 (mi.)
Categorize the risk of this well / site being in a karst geology	None
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	
<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>	
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	12/14/2025
On what date will (or did) the final sampling or liner inspection occur	12/16/2025
On what date will (or was) the remediation complete(d)	12/16/2025
What is the estimated surface area (in square feet) that will be remediated	17592
What is the estimated volume (in cubic yards) that will be remediated	0
<i>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.</i>	
<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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State of New Mexico
Energy, Minerals and Natural Resources
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1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS, Page 4

Action 541069

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 541069
	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@dv.com Date: 01/08/2026
<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 541069

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 541069
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Liner Inspection Information	
Last liner inspection notification (C-141L) recorded	534151
Liner inspection date pursuant to Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC	12/16/2025
Was all the impacted materials removed from the liner	Yes
What was the liner inspection surface area in square feet	17592

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	17592
What was the total volume (cubic yards) remediated	0
Summarize any additional remediation activities not included by answers (above)	Liner Inspected
<i>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>	
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@dv.com Date: 01/08/2026

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Phone: (505) 629-6116

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Santa Fe, NM 87505

CONDITIONS

Action 541069

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 541069
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Liner inspection approved, release resolved. Restoration complete.	1/28/2026