



February 4, 2025

5E33088 BG#9

EMNRD – Oil Conservation Division
506 W. Texas Ave
Artesia, NM 88210

SUBJECT: Closure Request Report for the Broadside 12 Facility 2, Incident ID # nAPP2432330772,
Facility ID: fAPP2209631775, Eddy County, New Mexico

1.0 Introduction

On behalf of Devon Energy Production Company, LP (Devon), Souder, Miller & Associates (SMA) has prepared this Closure Request Report. This report describes the corrective actions for a produced water incident related to oil and gas production activities at the Broadside 12 Facility 2 (Broadside), Incident ID nAPP2432330772, that occurred on November 16, 2024. The spill area is located at latitude N 32.2259306 and longitude W -103. 5185014.

Devon completed a release notification to the New Mexico Energy, Minerals, and Natural Resources Department – Oil Conservation Division (OCD) via Operators Electronic Permitting and Payment Portal on November 18, 2024, for the submission of Notice of Release (NOR), followed by the submission of the Form C-141, Release Notification on November 18, 2024. This letter provides a description of the spill assessment and includes a request for spill closure.

Table 1: Release Information and Closure Criteria			
Name	Broadside 12 Facility 2	Company	Devon Energy Production Company, LP
API Number	fAPP2209631775	Location	P-12-24S-33E N 32.2259306, W -103.5185014
Incident Number	nAPP2432330772	Land Status	Federal
Date of Release	November 16, 2024	Lease Number	NMNM114991
Source of Release	Flange on water transfer pump developed leak into secondary lined containment		
Released Volume	13 bbls	Recovered Volume	13 bbls
NMOCD Closure Criteria	Depth to groundwater >100 feet below ground surface (bgs)		

2.0 Background

On November 16, 2024, a flange located on the water transfer pump developed a leak resulting in a fluid release into the secondary lined containment. The total volume of released fluids was 13 barrels (bbls) of produced water. The release occurred within the secondary lined containment at Broadside. Initial response activities were conducted by the operator, including source elimination, photographs of standing fluids, recovery of approximately 13 bbls of produced water, and verification that the affected area was

properly exposed and cleaned for visual observation. Documentation of the liner inspection, including photographs, is provided in the Site Assessment Report in Attachment 1.

3.0 Site Geology and Vegetation

The Geologic Map of New Mexico by New Mexico Bureau of Geology and Mineral Resources indicates the surface geology at the incident location area is comprised of primarily Qep – Eolian and piedmont deposits (Holocene to middle Pleistocene) – interlayered eolian sands to piedmont slope deposits.

The surrounding geography and terrain are associated with uplands, plains, dunes, fan piedmonts, and inter dunal areas. at elevations between 2,800 and 5,000 feet above mean sea level (amsl). The annual average rainfall and precipitation ranges between 8 to 13 inches. The parent material consists of mixed alluvial and or eolian sands derived from sedimentary rock.

The primary surficial soil type on the location is Berino-Cacique association, hummocky. Soil features consist of being moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand, or gravelly sandy loam.

Subsurface is loamy fine sand, coarse sandy loam, fine sandy loam, or loam that averages less than 18 percent clay and less than 15 percent carbonates while substratum is fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

The ecological setting is vegetation of a grassland aspect dominated by black grama, dropseeds, and bluestems with scattered shinnery oak and sand sage. Sand sage and shinnery oak tend to be evenly dispersed due to the coarse soil surface. Perennial and annual forbs are reflective of rainfall. The grass/shrub state is composed of grasses/honey mesquite, grasses/broom snakeweed, or grasses/sand sage.

4.0 Site Information and Closure Criteria

The Broadside is located approximately 19.8 miles northwest of Jal, New Mexico, on private land at an elevation of approximately 3,370 feet amsl. SMA completed site assessment/characterization pursuant to 19.5.29.11-12 NMAC to determine potential environmental impacts and closure criteria. Site assessment and characterization results are included in Attachments 1 and 2.

There is no surface water located on site or within closure criteria parameters of the site. The nearest significant watercourse is a riverine located approximately 2.71 miles southwest, playa lake located 3.35 miles to the west, and a freshwater emergent wetland located 0.33 miles southeast of the site, as defined in 19.15.17.7.P NMAC (U.S. Fish and Wildlife Service, National Wetlands Inventory, 2024). There are no continuous flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features within the defined distances outlined in Paragraph (4) of Subsection C of 19.15.29.12NMAC.

Depth to ground water was determined using New Mexico Office of the State Engineer (NMOSE) Water Rights Pod Location: ArcGIS Interactive Online Map. The nearest active pod is Pod 04838-POD1, a temporary borehole used for depth to groundwater determination located on the northwest corner of Broadside. The temporary borehole was drilled to a depth of 105 feet bgs, where no water-bearing zone

was discovered. A one household domestic freshwater well, Pod C-3917-POD1, is located southwest of Broadside at 1.08 miles from Broadside.

Karst potential for the area that Broadside is low and is 10.6 miles northeast of a medium karst feature, based on the New Mexico State Land Office Land Status Interactive Map (NMSLO).

According to FEMA's National Flood Hazard Layer, Broadside is located in Zone D, an undetermined flood zone or unstudied area. The nearest mapped 100-year floodplain is located more than five miles from the site.

The closure criteria for the site are the constituent concentration limits associated with greater than 100 feet depth to groundwater (DTGW) as stated in Table I of 19.15.29.12 NMAC.

Documentation of site characterization, including surface water features, depth to groundwater, nearest residence, unstable areas, and flood zone, is included in Attachment 2

5.0 Remediation Activities

Notification of the liner inspection, scheduled for December 12, 2024, was provided to Devon through email by SMA personnel on December 10, 2024. Devon provided notification to NMOCD through the ENMRD Electronic Permitting and Payment Portal for Operators on December 10, 2024. Notification documentation is included in Attachment 3.

On December 12, 2024, SMA personnel performed an on-site visual inspection of the secondary containment to verify liner integrity as outlined in Paragraph (5)(a) of Subsection A of 19.15.29.11 NMAC.

Visual observation of the liner included a complete inspection of all sidewalls and the base of the containment, around equipment, and all seams of the liner. The inspection included looking for any potential perforations in the liner that could lead to a breach of the secondary containment. Observations concluded no signs of any cuts, rips, tears, or weathering of the liner condition which need repairs or replacement. Liner integrity was confirmed. Photo documentation of the liner inspection is in the Site Assessment Photolog (Attachment 1).

6.0 Conclusions and Recommendations

Based on the liner inspection and assessment, SMA concludes the liner integrity is adequate to contain the release related to incident nAPP2432330772. There is no evidence of a release to the environment. Based on the professional activities and site assessment, Devon Energy Production Company respectfully requests closure of the incident that occurred at Broadside 12 Facility 2.

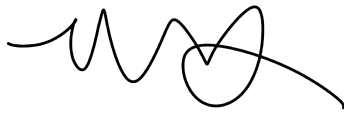
7.0 Scope and Limitations

The scope of our services included: visual inspection for liner integrity; regulatory liaison; and preparing this report. All work has been performed in accordance with accepted professional environmental consulting practices for oil and gas incidents in the Permian Basin in New Mexico.


If there are any questions regarding this report, please contact Stephanie Hinds at (505) 302-1127 or Monica Peppin at (575) 909-3418.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Reviewed by:



Monica Peppin, A.S.
Project Manager



Stephanie Hinds, P.E.
Senior Engineer

REFERENCES:

New Mexico Office of the State Engineer (NMOSE) online water well database

https://gis.ose.state.nm.us/gisapps/ose_pod_locations/

USGS National Water Information System: Web interface online water well database

https://nwis.waterdata.usgs.gov/nwis/gwlevels?site_no=321205103544701&agency_cd=USGS&format=html

U.S. Fish and Wildlife Service: National Wetlands Inventory

[Wetlands Mapper | U.S. Fish & Wildlife Service](#)

New Mexico State Land Office: Land Status

[NMSLO Land Status](#)

United States Department of Agriculture: Natural Resources Conservation Service: Web Soil Survey

<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

USDA, USGS The National Map: Orthoimagery: FEMA's National Flood Hazard Layer (NFHL) Viewer

<https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>

ATTACHMENTS:

Attachment 1: Site Assessment and Photolog

Attachment 2: Closure Criteria Determination Research

Attachment 3: Correspondence

ATTACHMENT 1: SITE ASSESSMENT AND PHOTOLOG



Stronger Communities by Design

Site Assessment and Photolog

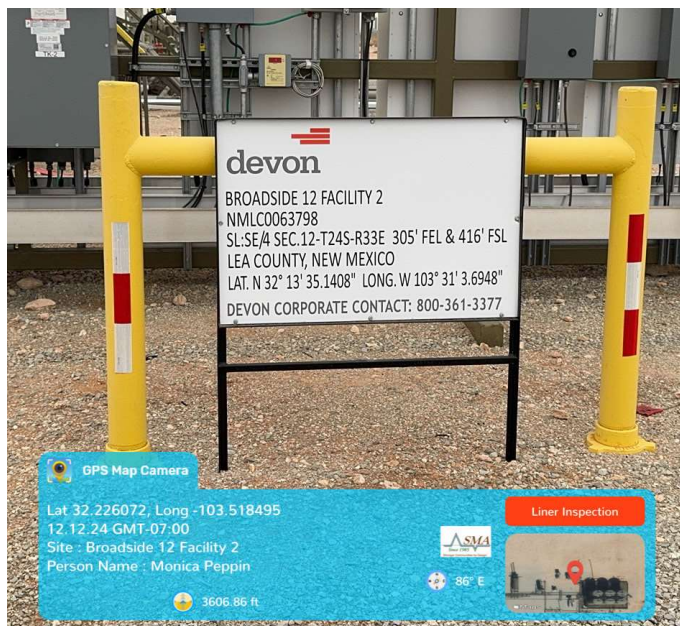
Client: Devon Energy Corporation Incident ID: nAPP2432330772
Facility ID: fAPP2209631775 Project Manager: Monica Peppin
Site: Broadside 12 Facility 2 Project Owner: Jim Raley

Field Notes

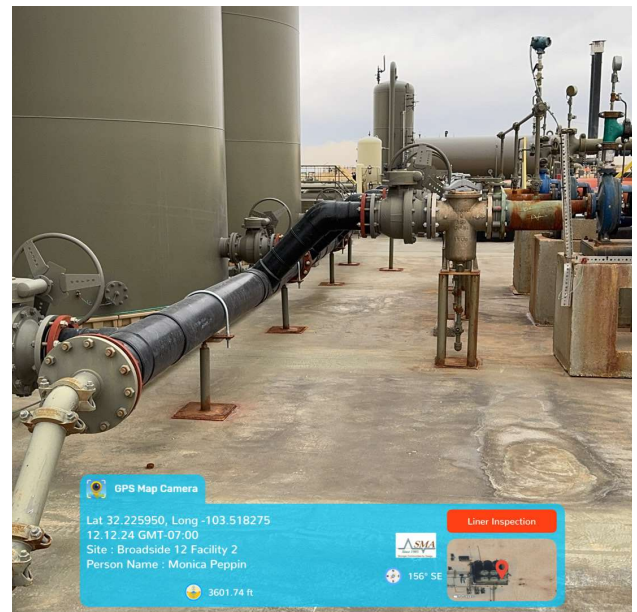
December 12, 2024

- Arrive on site, complete safety paperwork.
- Conduct visual inspection of secondary containment.
- Obtain pictures at different positions around the containment and between tanks.
- Inspected for any visible perforations, cuts, rips, tears, or substantial weathering that could lead to the potential breach through the liner.
- Inspection complete and there are no signs of permeation through the liner.
- The barrier between the secondary containment and ground surface is isolated to withhold fluids.

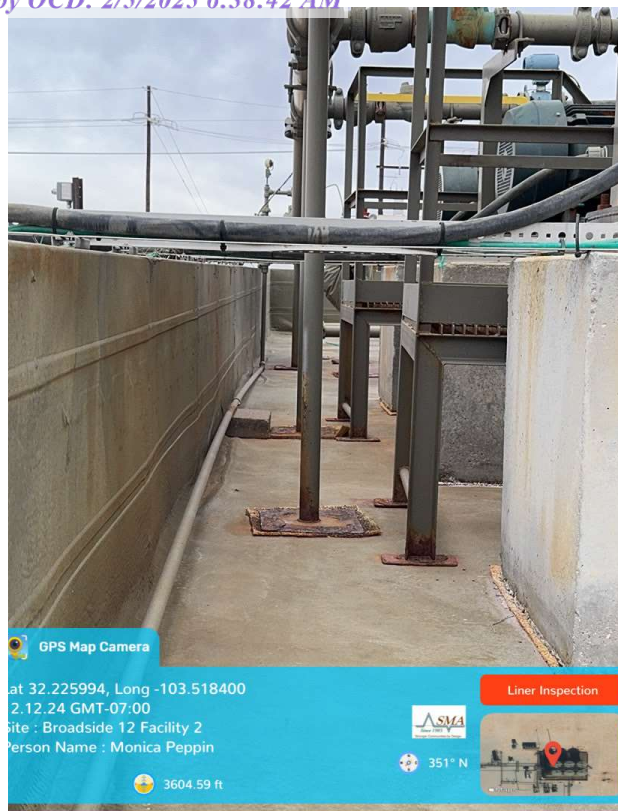
Photographs



Photograph #1: Lease sign with site information and geographic data.



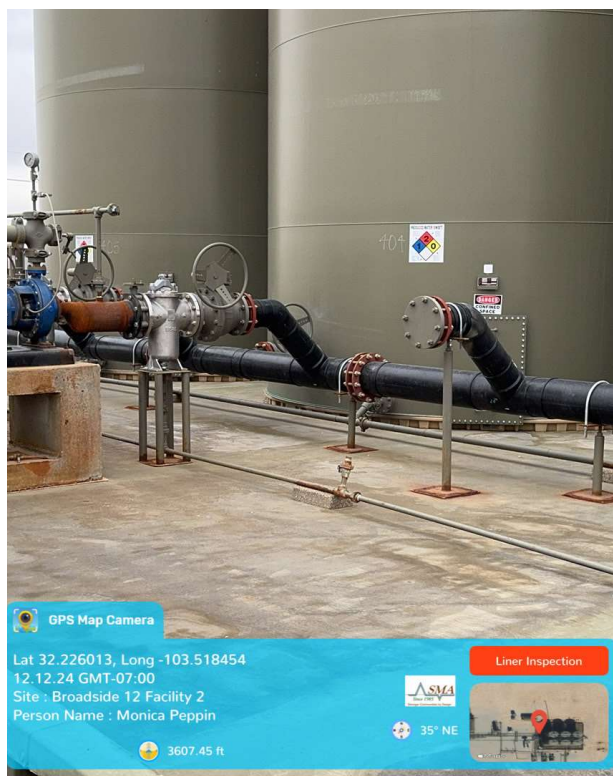
Photograph #2: North area of containment looking west.



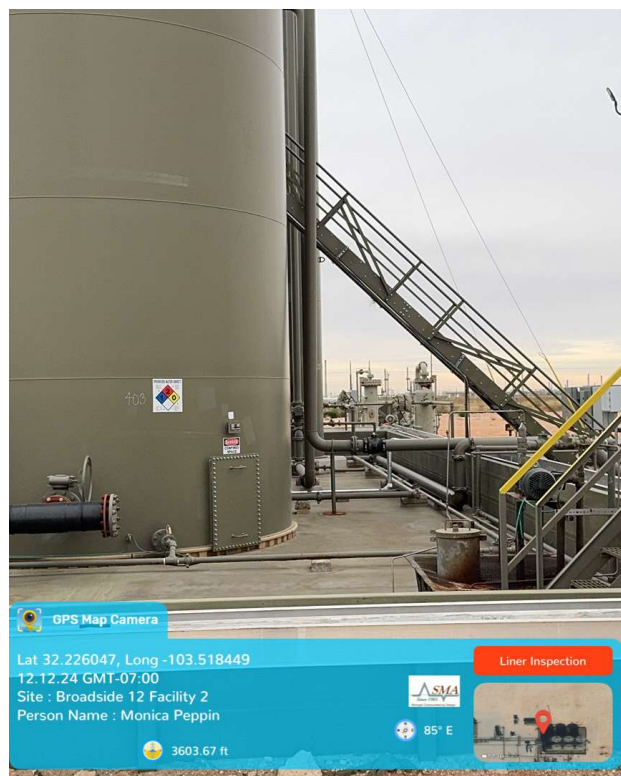
Photograph #3: Facing east looking down north wall between pumps.



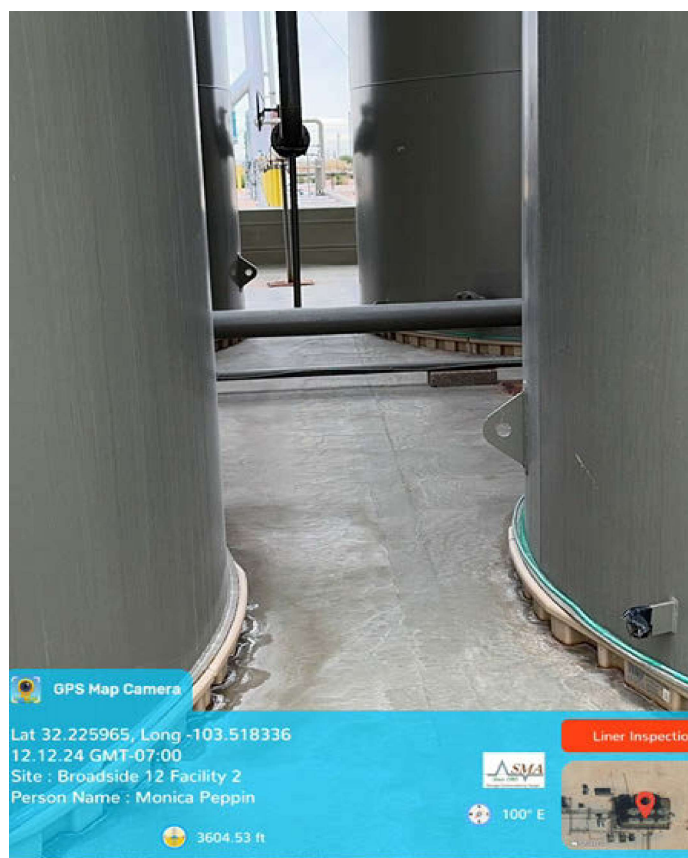
Photograph #4: Looking east viewing north side of containment between tanks and pumps.



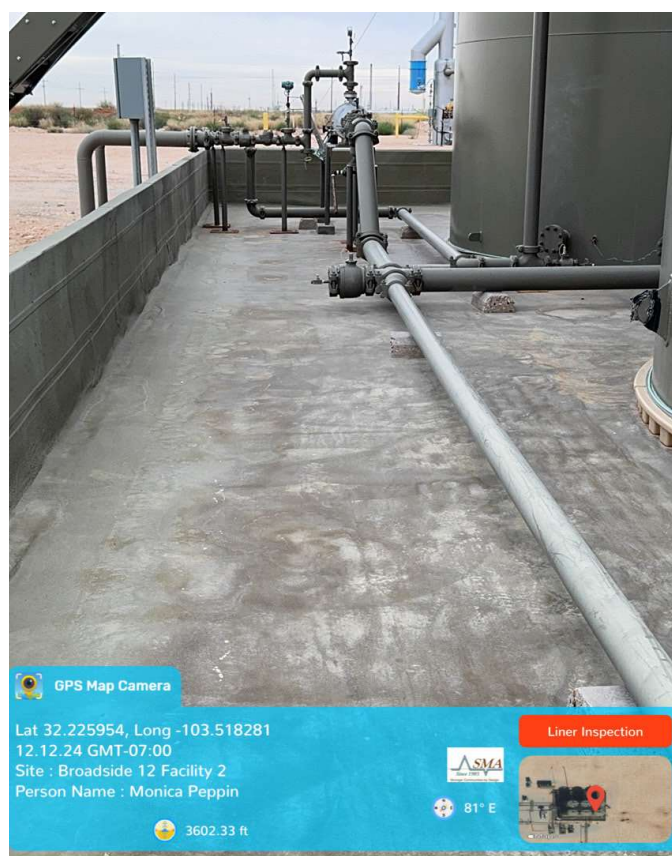
Photograph #5: View of northwest area looking southeast.



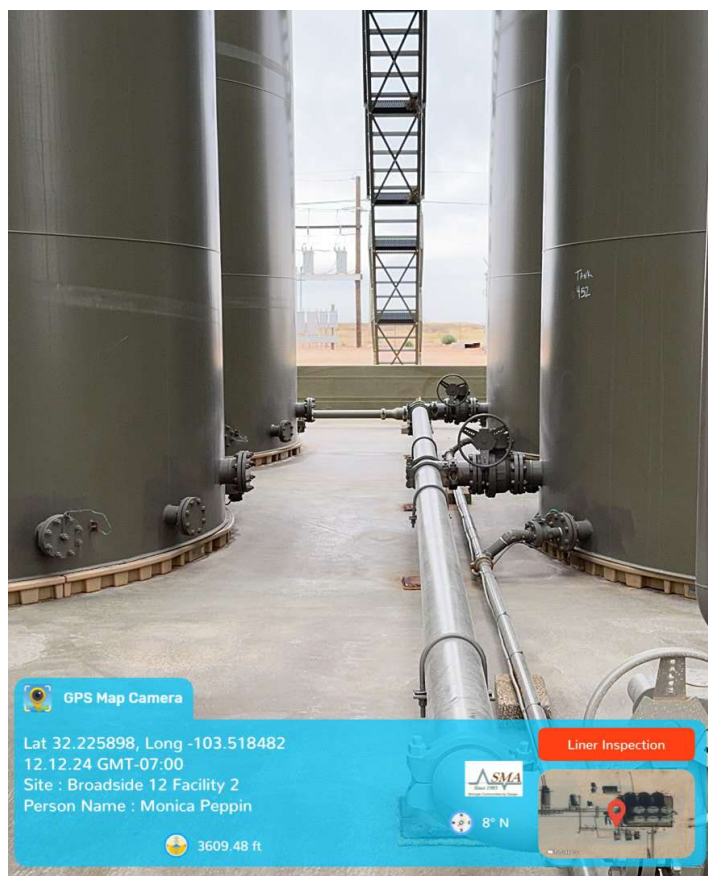
Photograph #6: Facing south viewing west area of containment.



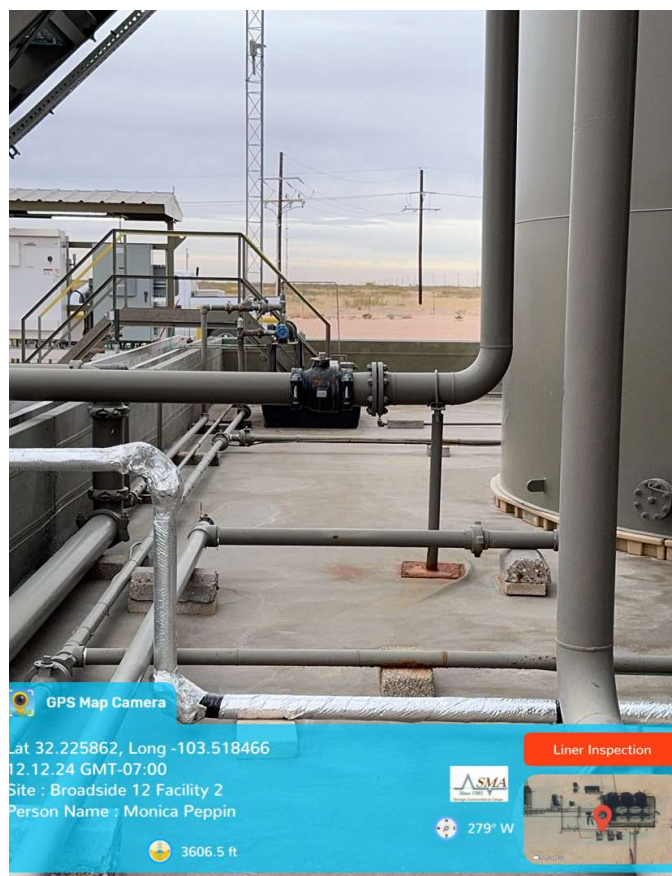
Photograph #7: Facing south viewing between tanks.



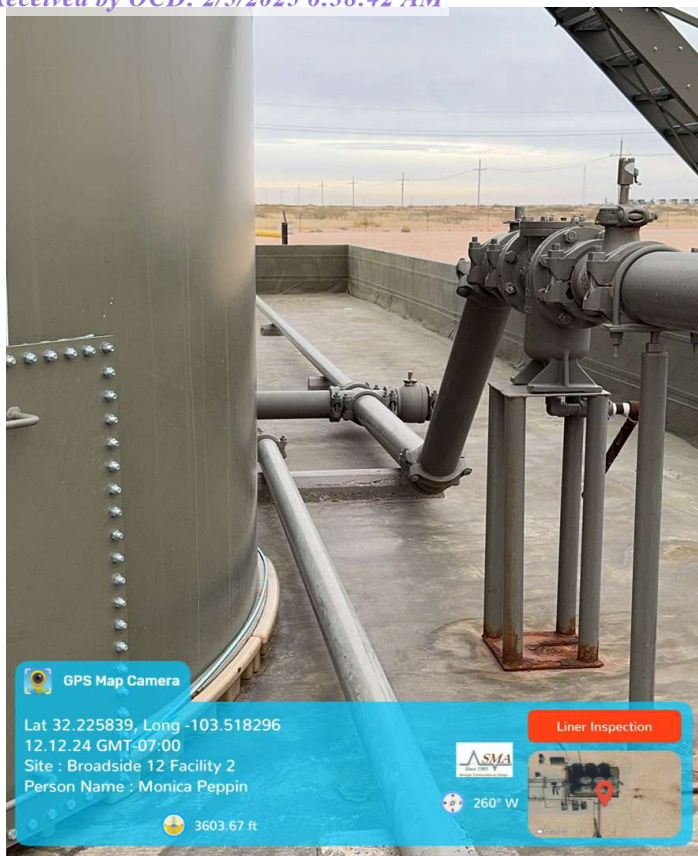
Photograph #8: Facing south viewing mid-east area of containment.



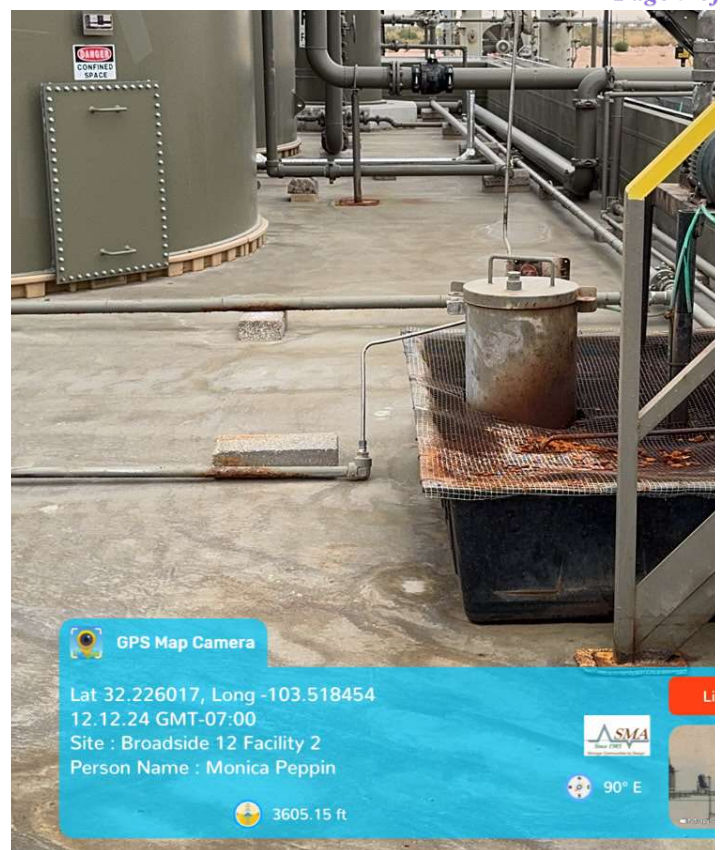
Photograph #9: Between tanks looking north



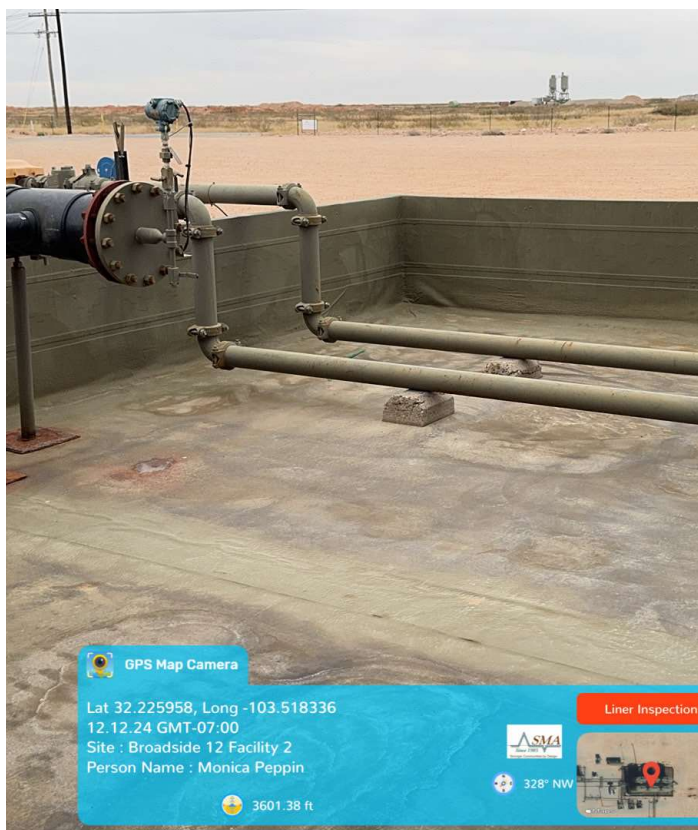
Photograph #10: Facing west viewing south end of containment.



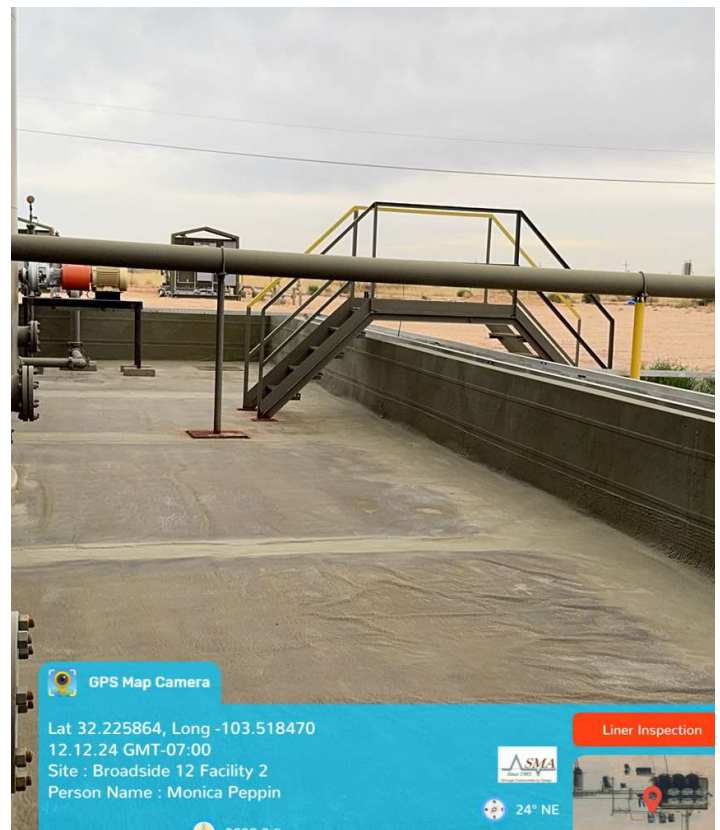
Photograph #11: Northeast corner viewing from mideast part of containment.



Photograph #12: South view of west area of containment.



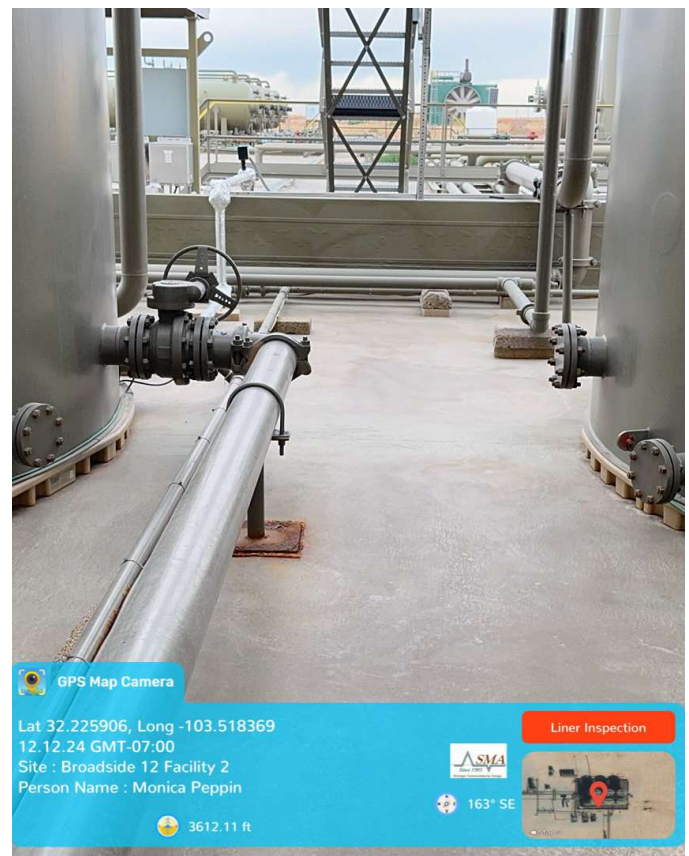
Photograph #13: Southwest corner of containment



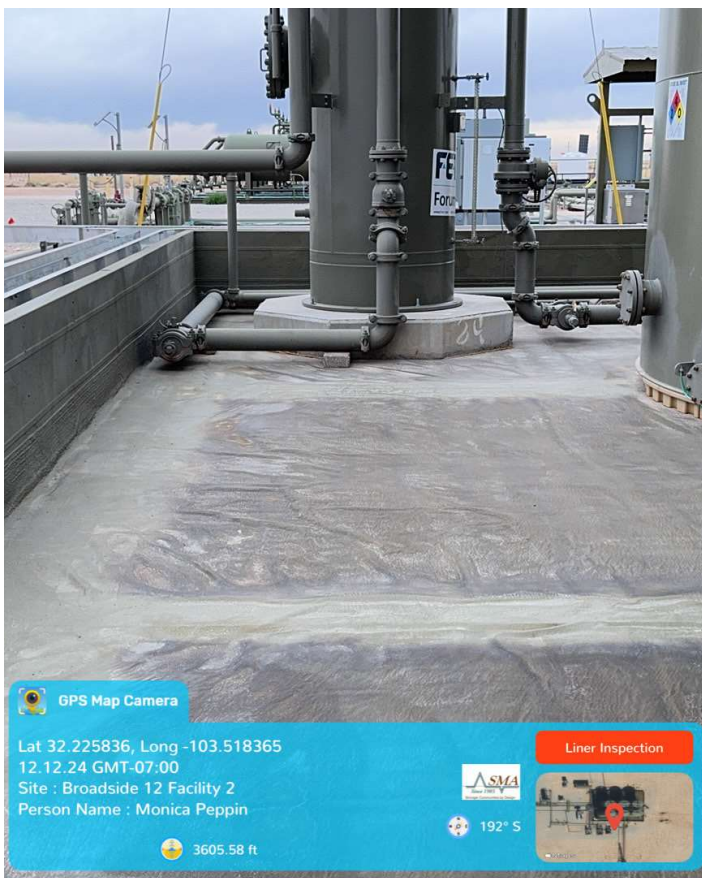
Photograph #14: East area of containment looking north.



Photograph #15: Looking north from between tanks.



Photograph #16: Looking south from between tanks.



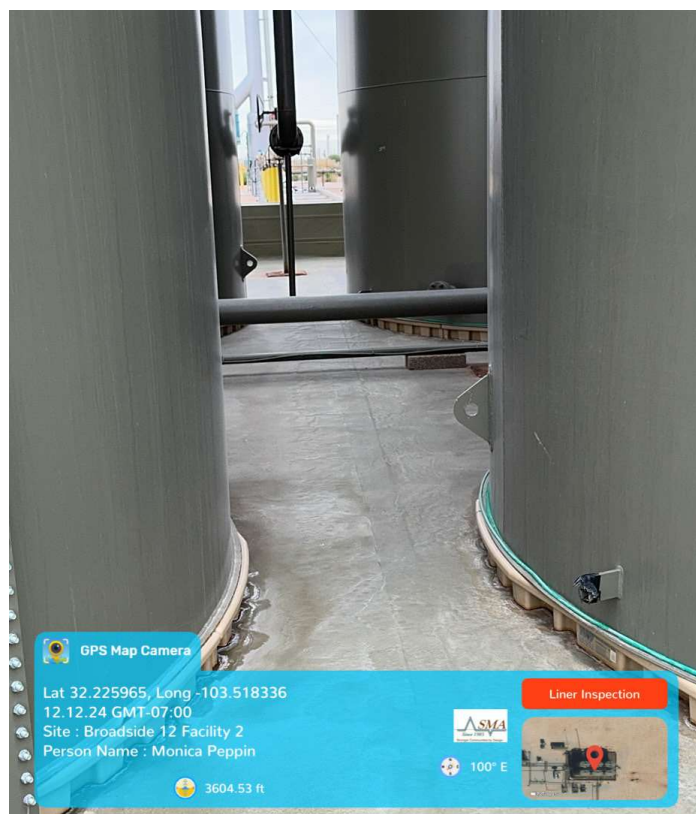
Photograph #17: Facing south showing west side of containment.



Photograph #18: Looking east viewing northeast corner.



Photograph #19: Liner between tanks north to south view.



Photograph #20: East west view between tanks of liner.

Technician: Monica Peppin

Date: 12/12/2024



Signature: _____

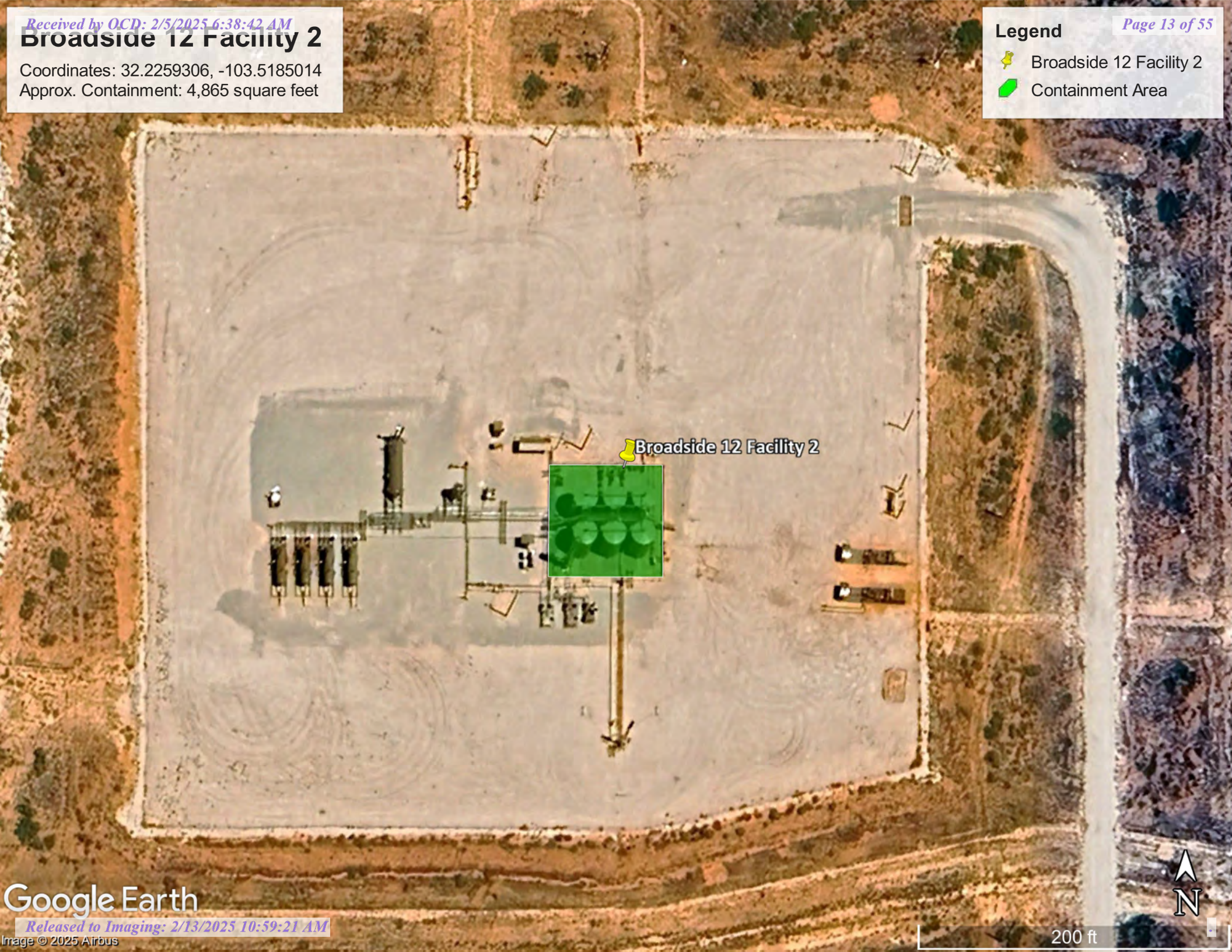
ATTACHMENT 2: CLOSURE CRITERIA DETERMINATION RESEARCH

Broadside 12 Facility 2

Coordinates: 32.2259306, -103.5185014
Approx. Containment: 4,865 square feet

Legend

-  Broadside 12 Facility 2
-  Containment Area

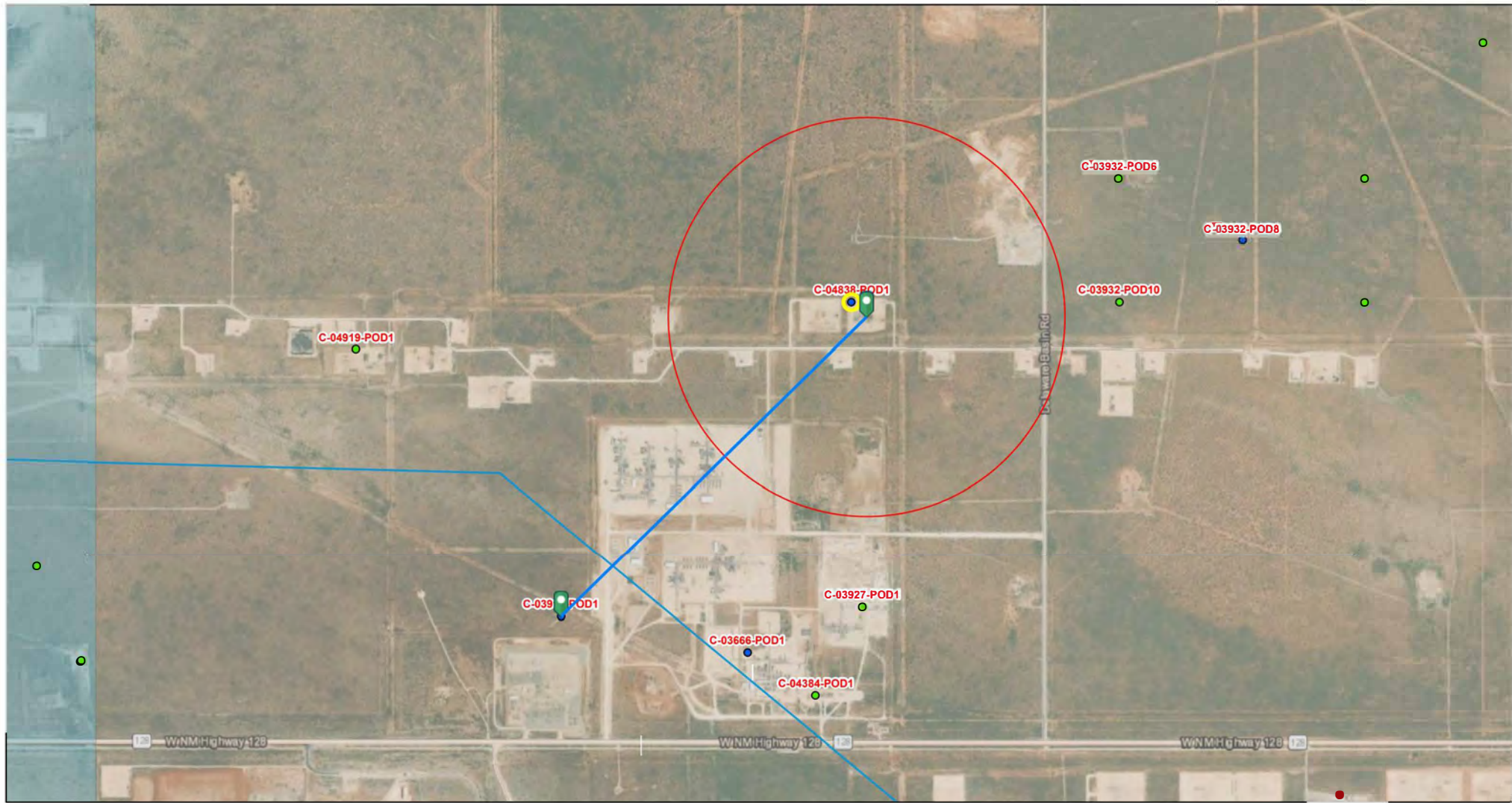


Broadside 12 Facility 2



Broadside 12 Facility 2

0.5-Mile Radius/Nearest Well for DTGW/Nearest Domestic Well



1/28/2025, 10:59:12 AM

— Override 1
 GIS WATERS PODs
 ● Active
 ● Pending
 ● Plugged
 [Red Outline] OSE District Boundary
 [Blue Outline] Artesian Planning Area
 [Blue Outline] New Mexico State Trust Lands
 [Blue Outline] Water Right Regulations
 [Blue Outline] Both Estates
 [Grey Outline] Closure Area

Nearest DTGW Pod: C-04838-POD1
Type of Well: Monitor Well
Location of Pod/Distance: On Pad for DTGW Determination
Depth of Temporary Borehole: 105 ft (No water bearing zone or cavity discovered)

Nearest Domestic Well: C-03917-POD1
Distance From Site: 1.08 miles/5,689 feet

1:18,056
 0 0.17 0.35 0.7 mi
 0 0.3 0.6 1.2 km

Esri, HERE, IPC, Esri, HERE, Garmin, IPC, Maxar

Online web user
 This is an unofficial map from the OSE's online application.



US FWS Wetlands Inventory Map



February 3, 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.

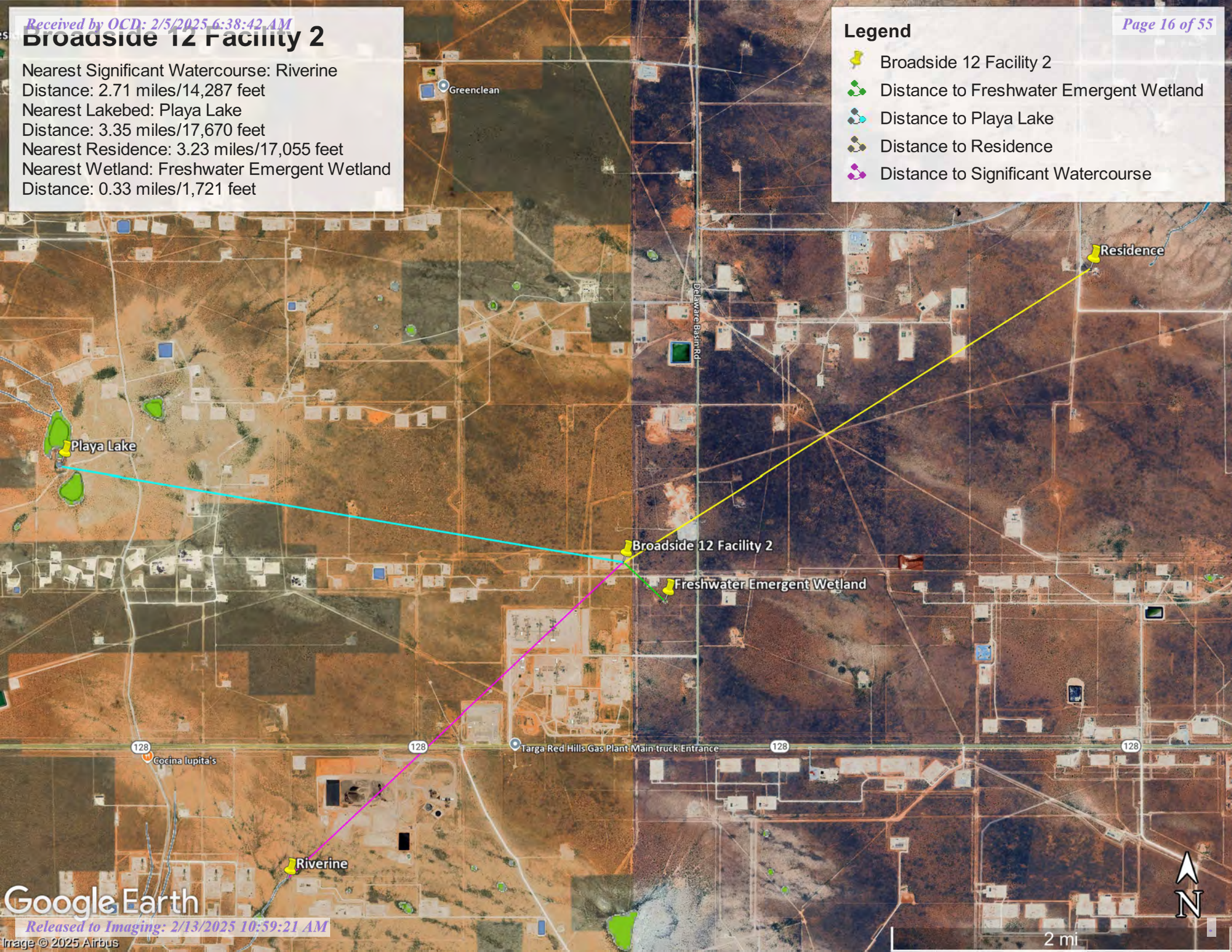
Note: Refer to following page
for distances to features.

Broadside 12 Facility 2

Nearest Significant Watercourse: Riverine
Distance: 2.71 miles/14,287 feet
Nearest Lakebed: Playa Lake
Distance: 3.35 miles/17,670 feet
Nearest Residence: 3.23 miles/17,055 feet
Nearest Wetland: Freshwater Emergent Wetland
Distance: 0.33 miles/1,721 feet

Legend




-  Broadside 12 Facility 2
-  Distance to Freshwater Emergent Wetland
-  Distance to Playa Lake
-  Distance to Residence
-  Distance to Significant Watercourse



Broadside 12 Facility 2

Nearest Municipal Boundary: Loving, NM
Distance: 19.8 miles/104,549 feet

Legend

-  Broadside 12 Facility 2
-  Distance to Municipal Boundary
-  Jal Municipal Boundary

Broadside 12 Facility 2

Milestone Environmental Services - Battle Axe...

Jal Cooper Cemetery

18

18

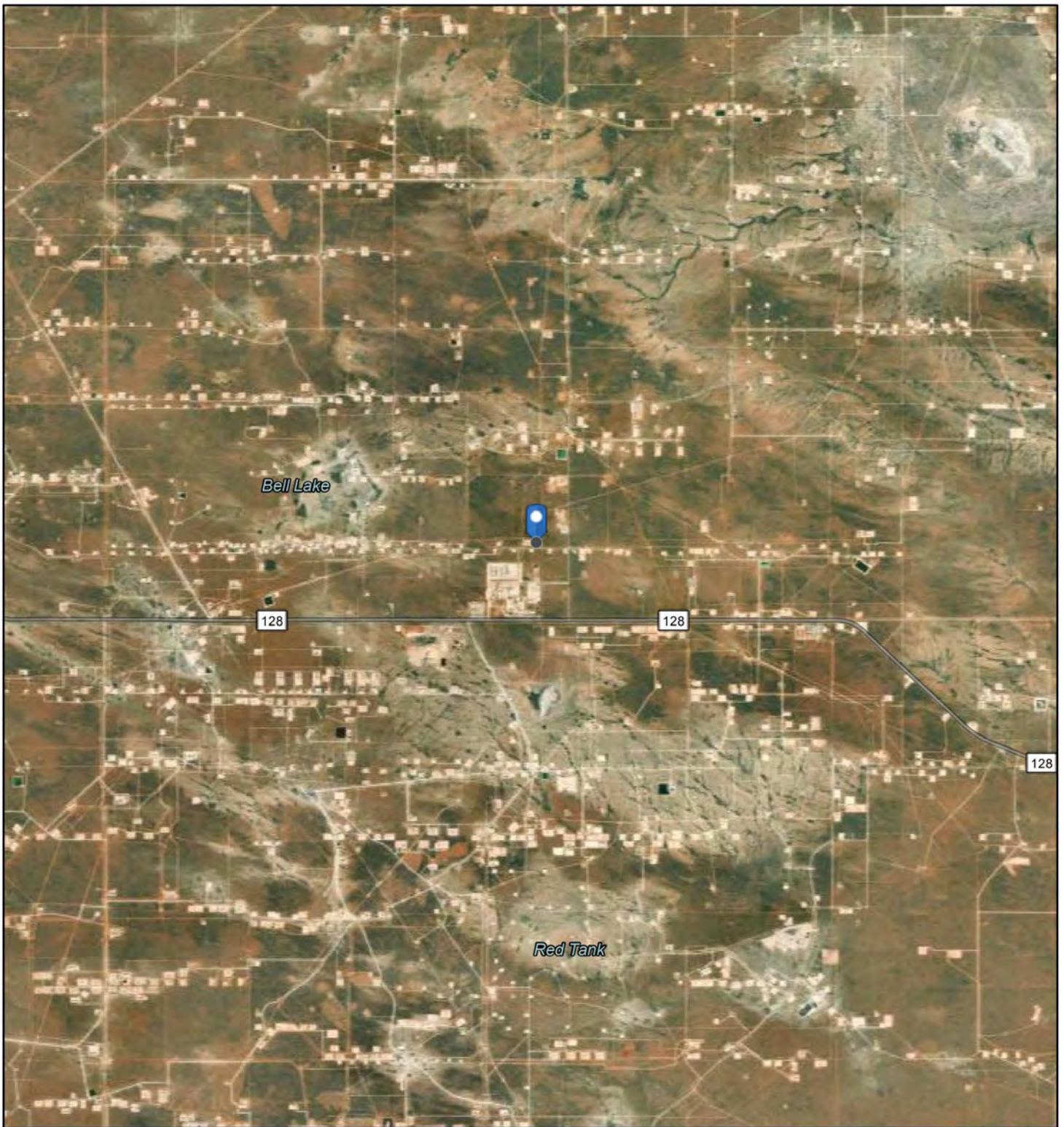
Jal

Bennett

Google Earth

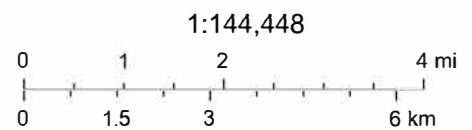


Broadside 12 Facility 2 - Subsurface Mines/Non-Karst



1/28/2025, 2:24:39 PM

■ Mining_Ghost_Towns



New Mexico Bureau of Geology and Mineral Resources, New Mexico Bureau of Geology & Mineral Resources, Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS, Earthstar Geographics, NMBGMR



Broadside 12 Facility 2 - Karst Potential and Distance

0 0.75 1.5 3
mi



New Mexico State Land Office

Disclaimer:
The New Mexico State Land Office assumes no responsibility or liability for, or in connection with the accuracy, reliability or use of the information provided herein with respect to State Land Office data or data from other sources.

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: 2/13/2025 10:59:21 AM

Map Created: 1/28/2025

● User drawn points

Karst_Potential_NM

Potential

High

Medium

Low

Critical_Karst_Zone_NM

Karst Potential:

Low

Distance to Medium Karst

Feature:

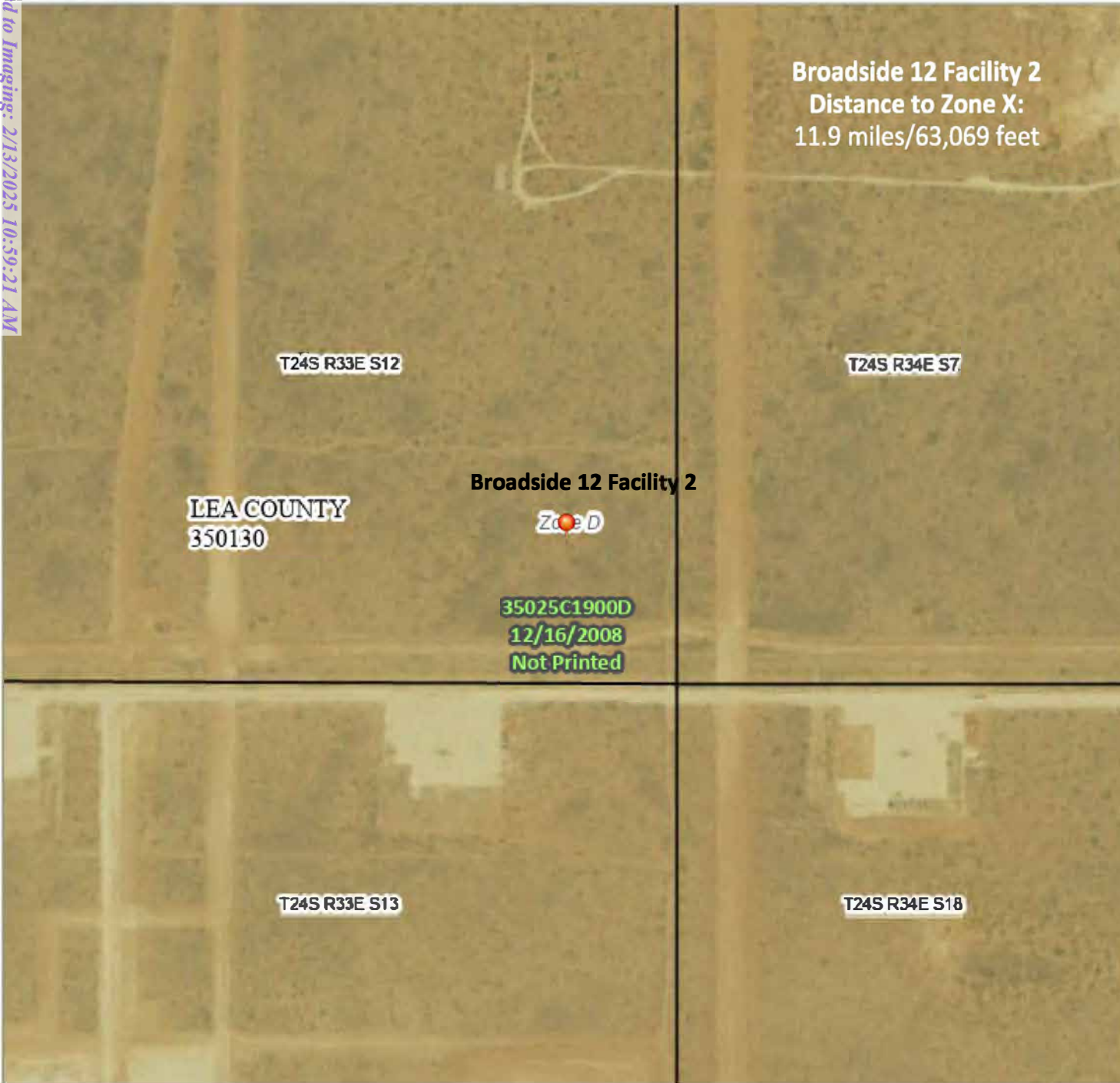
10.6 miles/56,144 feet



National Flood Hazard Layer FIRMette



103°31'25"W 32°13'49"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

103°30'48"W 32°13'18"N

Basemap Imagery Source: USGS National Map 2023

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, A99
		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
		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 X
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



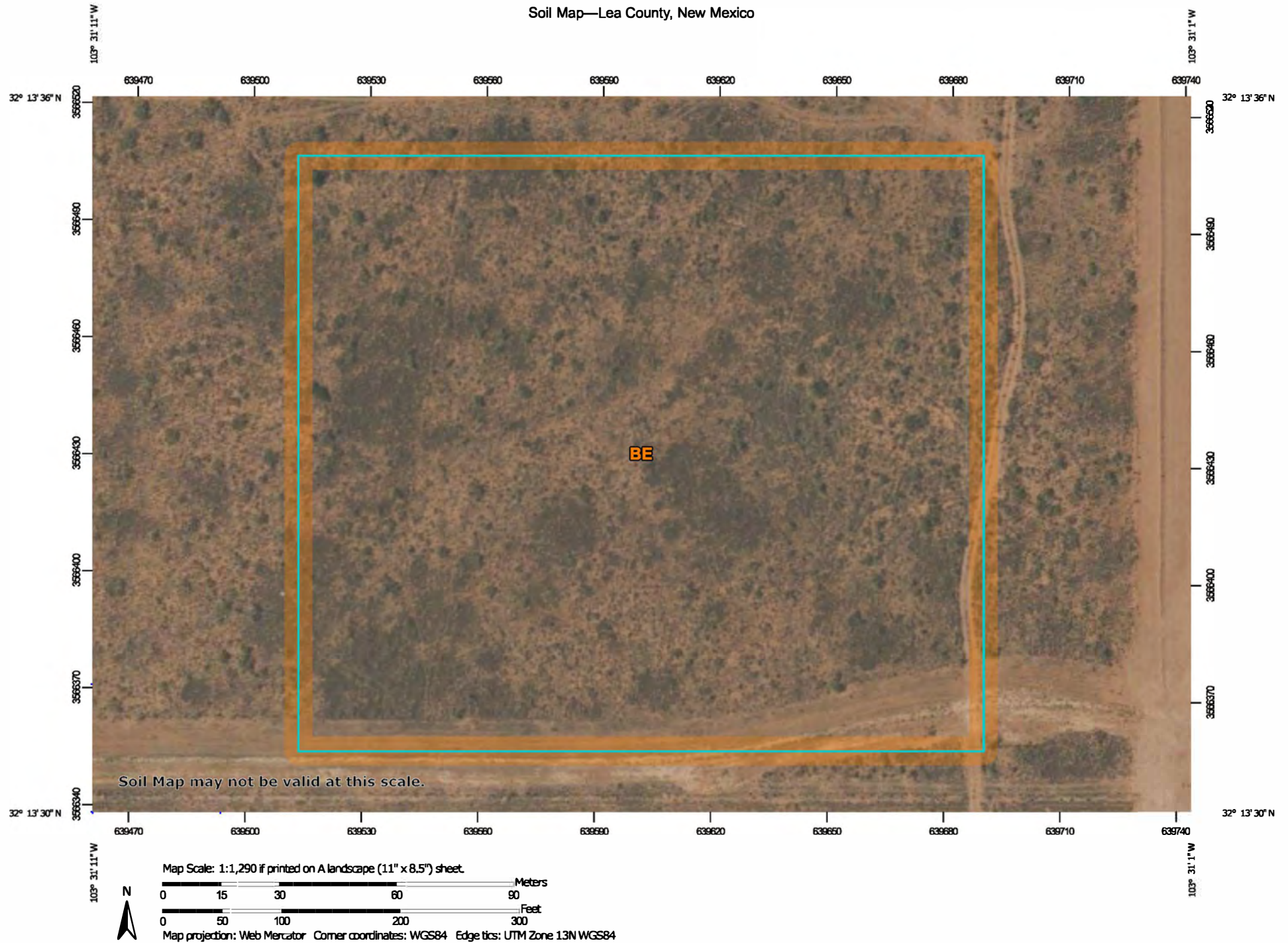
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/28/2025 at 9:28 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



Natural Resources
Conservation Service


Web Soil Survey
National Cooperative Soil Survey

1/28/2025
Page 1 of 3

Soil Map—Lea County, New Mexico

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Lea County, New Mexico

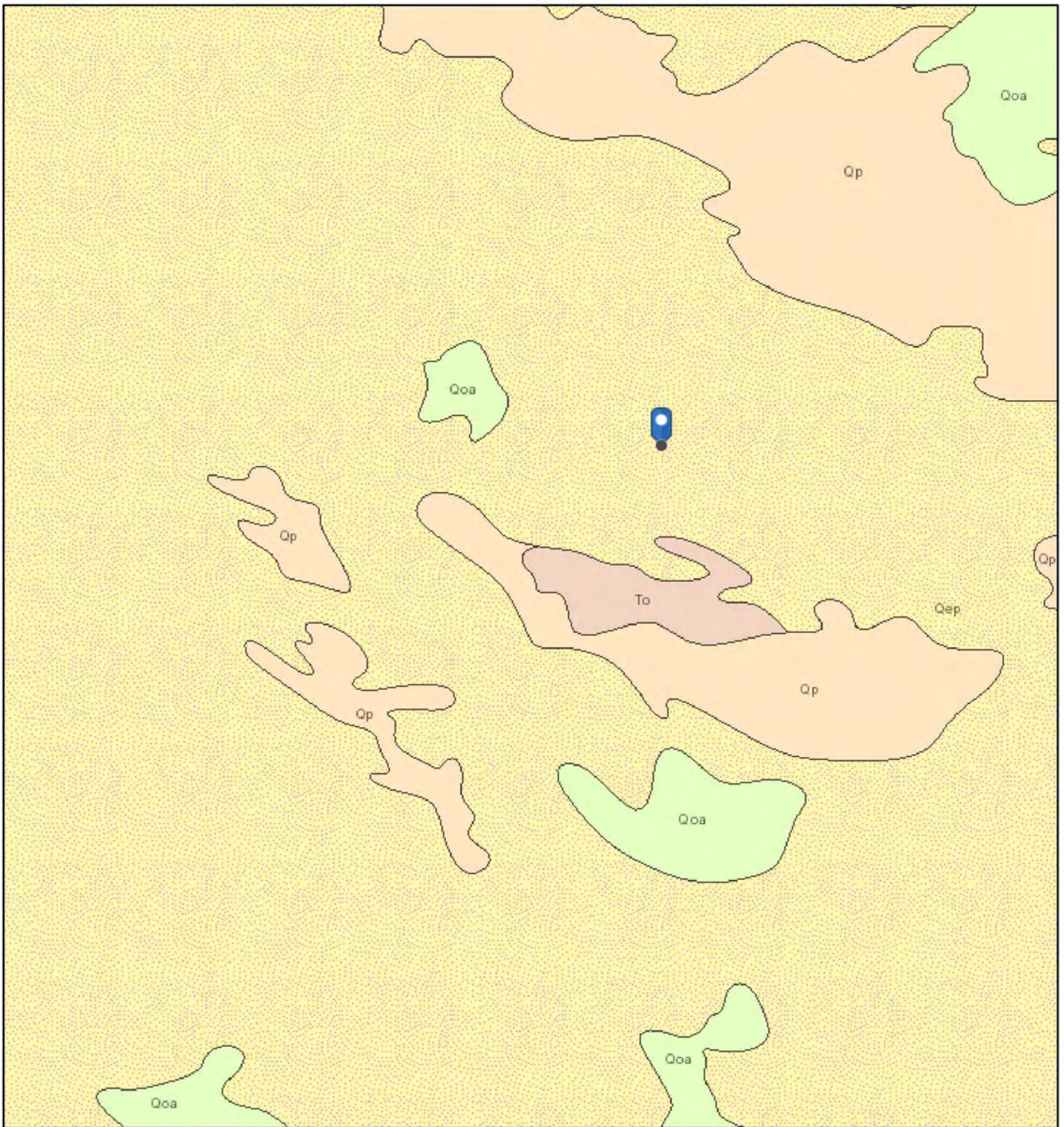
Survey Area Data: Version 21, Sep 3, 2024

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.

Broadside 12 Facility 2 - Geological Map

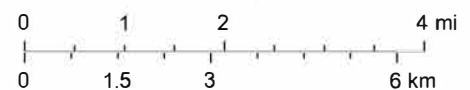


1/28/2025, 11:50:37 AM

1:144,448

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perennial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)



New Mexico Bureau of Geology and Mineral Resources, New Mexico Bureau of Geology & Mineral Resources, Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and

ArcGIS Web AppBuilder



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) POD1		WELL TAG ID NO. N/A		OSE FILE NO(S). C-04838 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 32	MINUTES 13	SECONDS 35.3 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND			
		LONGITUDE 103	31	08.9 W	* DATUM REQUIRED: WGS 84			
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE Unit P, Section 12, Township 24S, Range 33E, Lea County, NM								
2. DRILLING & CASING INFORMATION	LICENSE NO. WD1188		NAME OF LICENSED DRILLER John Scarborough			NAME OF WELL DRILLING COMPANY John Scarborough Drilling Inc.		
	DRILLING STARTED 06/06/2024		DRILLING ENDED 06/06/2024		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) FROM TO		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)
	0 105		5	Soil Boring	-	-	-	-
3. ANNULAR MATERIAL	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
				N/A				

FOR OSE INTERNAL USE

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

FILE NO. C-4838	POD NO. 1	TRN NO. 760708
LOCATION 24S. 33E. 12 444	WELL TAG ID NO. NA	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	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
	10	20	10	Sand with Gravel, light brown to white, fine to medium with some caliche gravel	Y ✓ N	
	20	30	10	Sand with Gravel, light brown to tan, fine to medium with some caliche gravel	Y ✓ N	
	30	40	10	Sand with Gravel, light brown to brown, fine to medium with trace caliche gravel	Y ✓ N	
	40	50	10	Sand, brown to red, fine to medium	Y ✓ N	
	50	60	10	Sand with gravel, light brown to brown, fine to medium with some caliche gravel	Y ✓ N	
	60	70	10	Sand with Clay, red to dark brown, medium to very fine	Y ✓ N	
	70	80	10	Sand with Clay, brown to dark brown, medium to very fine	Y ✓ N	
	80	90	10	Sand with Clay, brown to dark brown, medium to very fine	Y ✓ N	
	90	100	10	Sand with Clay, brown to dark brown, medium to very fine	Y ✓ N	
	100	105	5	Sand with Clay, brown to dark brown, medium to very fine	Y ✓ N	
	105	105	0	Sand with Clay, brown to dark brown, medium to very fine	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					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 OFF JUL 1 2024 14:00</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.					
	<div style="display: flex; justify-content: space-between;"> <div> Scott Scarborough <small>Digitally signed by Scott Scarborough Date: 2024.06.26 07:03:24 +06'00'</small> </div> <div>DATE</div> </div>					
SIGNATURE OF DRILLER / PRINT SIGNED NAME						

FOR USE INTERNAL USE

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

FILE NO. C-4838	POD NO. 1	TRN NO. 760708
LOCATION 245-36-12 444	WELL TAG ID NO. N119	PAGE 2 OF 2

File No. C-04838 POD1

NEW MEXICO OFFICE OF THE STATE ENGINEER



WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable boxes):

For fees, see State Engineer website: <http://www.ose.state.nm.us/>

- Purpose:
- ☐ Pollution Control And/OR Recovery ☐ Ground Source Heat Pump
- ☐ Exploratory Well*(Pump test) ☐ Construction Site/Public Works Dewatering ☒ Other(Describe): Groundwater Determination
- ☐ Monitoring Well ☐ Mine Dewatering

A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive.

*New Mexico Environment Department-Drinking Water Bureau (NMED-DWB) will be notified if a proposed exploratory well is used for public water supply.

☐ Check here if the borehole is anything other than vertical (directional boring or angle boring) and include a schematic of your design.☐ Temporary Request - Requested Start Date:

Requested End Date: TBD

Plugging Plan of Operations Submitted? ☒ Yes ☐ NoNote: if there is known artesian conditions, contamination or high mineral content at the drilling location, include the borehole log or a well log from an existing well at that location. If this information is not submitted, check box and attach form WD-09 to this form. ☐

1. APPLICANT(S)

Name: Devon Energy Production Company	Name: Ensolum, LLC
Contact or Agent: Dale Woodall check here if Agent <input type="checkbox"/>	Contact or Agent: Ashley Giovengo check here if Agent <input checked="" type="checkbox"/>
Mailing Address: 205 E. Bender Blvd	Mailing Address: 3122 National Parks Highway
City: Hobbs	City: Carlsbad
State: New Mexico	State: New Mexico
Zip Code: 88240	Zip Code: 88220
Phone: 575-748-1838 Phone (Work):	Phone: 575-988-0055 Phone (Work):
E-mail (optional): dale.woodall@devon.com	E-mail (optional): agiovengo@ensolum.com

OCD BY MAIL 14 2024 40001

FOR OSE INTERNAL USE

Application for Permit, Form WR-07, Rev 02/29/2024

File No.: C-04838

Trm. No.: 760708

Receipt No.: 2-46895

Trans Description (optional):

Sub-Basin: CUB

PCW/LOG Due Date: 5/29/25

Page 1 of 3

2. WELL(S) Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
 District II (Roswell), District V (Aztec) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)

☐ NM West Zone

☐ NM East Zone

☐ NM Central Zone

☐ UTM (NAD83) (Meters)

☐ Zone 12N

☐ Zone 13N

☒ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (Quarters or Halves, Section, Township, Range) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
BH01 C-04838 POD1	32°13'35.26"N	-103°31'8.94"W	P-12-24S-33E Lea County, NM

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)

Additional well descriptions are attached: ☐ Yes ☒ No If yes, how many _____

Other description relating well to common landmarks, streets, or other:

Located near the Broadside 12 Facility 2 (32.2259306, -103.5185014)

Well is on land owned by: Conoco Phillips

Well Information: **NOTE:** If more than one (1) well needs to be described, provide attachment. Attached? ☐ Yes ☒ No

If yes, how many _____

Approximate depth of well (feet): 105

Outside diameter of well casing (inches): 2 3/8"

Driller Name: John Scarborough

Driller License Number: WD1188

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

One soil boring to be advanced at the site to assess subsurface soil and regional groundwater depth. Temporary 2-inch inside diameter PVC well screen will be placed in open borehole to determine depth to water at the site. The borehole will be abandoned after 72 hours from the time the borehole is completed. The borehole location is depicted on the attached figure.

FILED ON APR 14 2024 10:01

FOR OSE INTERNAL USE

Application for Permit, Form WR-07 Version 02/29/2024

File No.: C-04838 POD1

Trm No.: 760708

Page 2 of 3

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

<p>Exploratory*: Is proposed well a future public water supply well? <input type="checkbox"/> Yes <input type="checkbox"/> NO If Yes, an application must be filed with NMED-DWB, concurrently. <input type="checkbox"/> Include a description of any proposed pump test, if applicable.</p> <p>Monitoring*: <input type="checkbox"/> Include the reason for the monitoring well, and, <input type="checkbox"/> The duration of the planned monitoring.</p>	<p>Pollution Control and/or Recovery: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following: <input type="checkbox"/> A description of the need for the pollution control or recovery operation. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The annual diversion amount. <input type="checkbox"/> The annual consumptive use amount. <input type="checkbox"/> The maximum amount of water to be diverted and injected for the duration of the operation. <input type="checkbox"/> The method and place of discharge. <input type="checkbox"/> The method of measurement of water produced and discharged. <input type="checkbox"/> The source of water to be injected. <input type="checkbox"/> The method of measurement of water injected. <input type="checkbox"/> The characteristics of the aquifer. <input type="checkbox"/> The method of determining the resulting annual consumptive use of water and depletion from any related stream system. <input type="checkbox"/> Proof of any permit required from the New Mexico Environment Department. <input type="checkbox"/> An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.</p>	<p>Construction De-Watering: <input type="checkbox"/> Include a description of the proposed dewatering operation. <input type="checkbox"/> The estimated duration of the operation. <input type="checkbox"/> The maximum amount of water to be diverted. <input type="checkbox"/> A description of the need for the dewatering operation, and, <input type="checkbox"/> A description of how the diverted water will be disposed of.</p> <p>Ground Source Heat Pump: <input type="checkbox"/> Include a description of the geothermal heat exchange project. <input type="checkbox"/> The number of boreholes for the completed project and required depths. <input type="checkbox"/> The time frame for constructing the geothermal heat exchange project, and, <input type="checkbox"/> The duration of the project. <input type="checkbox"/> Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.</p>	<p>Mine De-Watering: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following <input type="checkbox"/> A description of the need for mine dewatering. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The source(s) of the water to be diverted <input type="checkbox"/> The geohydrologic characteristics of the aquifer(s). <input type="checkbox"/> The maximum amount of water to be diverted per annum. <input type="checkbox"/> The maximum amount of water to be diverted for the duration of the operation. <input type="checkbox"/> The quality of the water. <input type="checkbox"/> The method of measurement of water diverted. <input type="checkbox"/> The recharge of water to the aquifer. <input type="checkbox"/> Description of the estimated area of hydrologic effect of the project. <input type="checkbox"/> The method and place of discharge <input type="checkbox"/> An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. <input type="checkbox"/> A description of the methods employed to estimate effects on surface water rights and underground water rights. <input type="checkbox"/> Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.</p>
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(* if exploration or monitoring drilling activity is required by NMED, then you must also submit the NMED Work Plan)

ACKNOWLEDGEMENT

I, We (name of applicant(s)), Ashley Giovengo

Print Name(s)

affirm that the foregoing statements are true to the best of (my,our) knowledge and belief

Ashley Giovengo Digitally signed by Ashley Giovengo
Date: 2024.05.08 14:58:39 -06'00'

Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☒ approved

☐ partially approved

☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval

Witness my hand and seal this 29th day of May 20 24, for the State Engineer,

MIKE A. HAMMAN, P.E.

, State Engineer

By:

Signature

K. Parekh

KASHYAP PAREKH

Print

Title:

WATER RESOURCE MANAGER I

Print



FOR OSE INTERNAL USE

Application for Permit, Form WR-07 Version 02/29/2024

File No.:

C-04838 PDD1

Tm No.

760708

Page 3 of 3

**NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE**

SPECIFIC CONDITIONS OF APPROVAL

- 17-16 Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the landowner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths inches outside diameter.
- 17-1A Depth of the well shall not exceed the thickness of the valley fill.
- 17-4 No water shall be appropriated and beneficially used under this permit.
- 17-6 The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable and approved by the state engineer. The well shall be plugged with an office of the state engineer approved sealant for use in the plugging of non-artesian wells. The well driller shall cut the casing off at least four (4) feet below ground surface and fill the open hole with at least two vertical feet of approved sealant. The driller must fill or cover any open annulus with sealant. Once the sealant has cured, the well driller or well owner may cover the seal with soil. A Plugging Report for said well shall be filed with the Office of the State Engineer in a District Office within 30 days of completion of the plugging.

Trn Desc: C 04838 POD1

File Number: C 04838

Trn Number: 760708

page: 1

**NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE**

SPECIFIC CONDITIONS OF APPROVAL (Continued)

- 17-7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.
- 17-B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.
- 17-C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record.
The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.
- 17-P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.
- 17-Q The State Engineer retains jurisdiction over this permit.
- 17-R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

Trn Desc: C 04838 POD1_____

File Number: C 04838_____

Trn Number: 760708_____

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL (Continued)

LOG The Point of Diversion C 04838 POD1 must be completed and the Well Log filed on or before 05/29/2025.

IT IS THE PERMITTEE'S RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

ACTION OF STATE ENGINEER

Notice of Intention Rcvd:	Date Rcvd. Corrected:
Formal Application Rcvd: 05/14/2024	Pub. of Notice Ordered:
Date Returned - Correction:	Affidavit of Pub. Filed:

This application is approved provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare of the state; and further subject to the specific conditions listed previously.

Witness my hand and seal this 29 day of May A.D., 2024

Mike A. Hamman, P.E., State Engineer

By:

K. Parekh
KASHYAP PAREKH



Trn Desc: C 04838 POD1

File Number: C 04838

Trn Number: 760708

4000517870001

Esri, HERE, Garmin, (c) OpenStreetMap contributors, NMTRD, Larry Brotman

Coordinates**UTM - NAD 83 (m) - Zone 13**

Easting 639536.930

Northing 3566498.788

State Plane - NAD 83 (f) - Zone E

Easting 793108.826

Northing 447072.372

Degrees Minutes Seconds

Latitude 32 : 13 : 35.260000

Longitude -103 : 31 : 8.940000

Location pulled from Coordinate Search

**NEW MEXICO OFFICE
OF THE
STATE ENGINEER**

1:2,257

N



5/21/2024



Reasonable efforts have been made by the New Mexico Office of the State Engineer (OSE) to verify that these maps accurately represent the source data used in their preparation; however, a degree of error is inherent in all maps and these maps may contain omissions and errors in scale, resolution, and/or content. The user assumes all responsibility for the use of these maps. These maps are distributed "as is" without warranty of any kind.

Spatial Information**Land Grant: Not in Land Grant
County: Lea****Groundwater Basin: Carlsbad****Abstract Area:
Carlsbad 72-12-1****Carlsbad Underground Basin****Regulation Area:****Carlsbad/Capitan/Lea Closure****PLSS Description****NWSESESE Qtr of Sec 12 of 024S 033E**

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

Parcel Information**UPC/DocNum: 4000517870001****Parcel Owner: Quail Ranch Llc****Address: 1620 W Nm Highway 128 null
77252****Legal:** Township 24 S R | Township 24 S R | Township 24 S
R | Township 24 S R | Township 24 S R | Township
25 S R | Township 24 S R | Township 24 S R |
Township 24 S R | Township 24 S R | Township 24 S**POD Information****Owner:****File Number:****POD Status: NoData****Permit Status: NoData****Permit Use: NoData****Purpose:** Coord Search
Location**Water Right
Regulations**

Closure Area

Artesian
Planning AreaOSE District
Boundary Bernalillo
County Parcels
2023 Catron County
Parcels 2023 Chaves County
Parcels 2023 Cibola County
Parcels 2023 Colfax County
Parcels 2023 Curry County
Parcels 2023 De Baca
County Parcels
2023 Doña Ana
County Parcels
2023 Eddy County
Parcels 2023 Grant County
Parcels 2023 Guadalupe
County Parcels
2023 Harding County
Parcels 2023 Hidalgo County
Parcel 2023 Lea County
Parcels 2023 Lincoln County
Parcels 2023 Los Alamos
County Parcels
2023 Luna County
Parcels 2023 McKinley
County Parcels
2023 Mora County
Parcels 2023 Otero County
Parcels 2023 Quay County
Parcels 2023 Rio Arriba
County Parcels
2023 Roosevelt
County Parcels
2023 Sandoval
County Parcels
2023 San Juan
County Parcels
2023 San Miguel
County Parcels
2023 Santa Fe
County Parcels
2023 Sierra County
Parcels 2023 Socorro County
Parcels 2023 Taos County
Parcels 2023 Torrance
County Parcels
2023 Union County
Parcels 2023 Valencia County
Parcels 2023

Mike A. Hamman, P.E.
State Engineer



Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

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

Trn Nbr: 760708
File Nbr: C 04838

May. 29, 2024

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

Greetings:

Your approved copy of the above numbered permit to drill a well for non-consumptive purposes is enclosed. You must obtain an additional permit if you intend to use the water. It is your responsibility to provide the contracted well driller with a copy of the permit that must be made available during well drilling activities.

Carefully review the attached conditions of approval for all specific permit requirements.

- * If use of this well is temporary in nature and the well will be plugged at the end of the well usage, the OSE must initially approve of the plugging. If plugging approval is not conditioned in this permit, the applicant must submit a Plugging Plan of Operations for approval prior to the well being plugged. The Plugging Record must be properly completed and submitted to the OSE within 30 days of the well plugging.
- * If the final intended purpose and condition requires a well ID tag and meter installation, the applicant must immediately send a completed meter report form to this office.
- * The well record and log must be submitted within 30 days of the completion of the well or if the attempt was a dry hole.
- * This permit expires and will be cancelled if no well is drilled and/or a well log is not received by the date set forth in the conditions of approval.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us.

Sincerely,

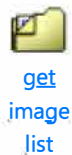
A handwritten signature in black ink that reads "Rodolfo Chavez".

Rodolfo Chavez
(575) 622-6521

Enclosure

explore

Water Right Summary



WR File Number:	C 03917	Subbasin:	C	Cross Reference:
Primary Purpose:	DOM 72-12-1 DOMESTIC ONE HOUSEHOLD			
Primary Status:	PMT Permit			
Total Acres:		Subfile:	Header:	
Total Diversion:	1.000	Cause/Case:		
Owner:	NGL WATER SOLUTIONS PERMIAN	Owner Class:	Owner	
Contact:	R CHARLES WILKIN			

Documents on File

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres
_get images	633173	COWNF	2018-09-17	CHG	PRC	C 03917	T	
_get images	578203	72121	2015-11-03	PMT	LOG	C 03917 POD1	T	

Current Points of Diversion

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tw	Rng	X	Y	Map	Other Location
C 03917 POD1	NA	Shallow	SE	NW	SW	13	24S	33E	638373.9	3565212.6		

* UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

				OSE FILE NUMBER(S) C-3917	
WELL OWNER NAME(S) MARK McCLOY				PHONE (OPTIONAL)	
WELL OWNER MAILING ADDRESS BOX 795				CITY TATUM	STATE NM
				ZIP 88267	
WELL LOCATION (FROM GPS)	DEGREES		MINUTES	SECONDS	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84
	LATITUDE	32	12	54.52 N	
	LONGITUDE	103	31	54.52 W	
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE					

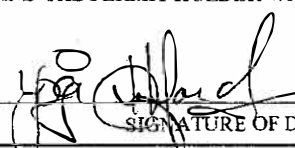
LICENSE NUMBER WD-1058		NAME OF LICENSED DRILLER CASEY KEY		NAME OF WELL DRILLING COMPANY KEYS DRILLING & PUMP SERVICE INC.			
DRILLING STARTED 03/1/16	DRILLING ENDED 03/4/16	DEPTH OF COMPLETED WELL (FT) 600'	BORE HOLE DEPTH (FT) 600'	DEPTH WATER FIRST ENCOUNTERED (FT) 520'			
COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input checked="" type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) 420'			
DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD <input type="checkbox"/> ADDITIVES - SPECIFY:							
DRILLING METHOD: <input type="checkbox"/> ROTARY <input checked="" 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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
FROM	TO						
-1.50	20	10-3/4	STEEL		10"	1/4"	
-1.50	300	9-7/8	PVC SCH 40	SPLINE	6"	SCH 40	
300	600	9-7/8	PVC SCH 40	SPLINE	6"	SCH 40	0.032

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					
		0	20	10-3/4	CEMENT		TOP POUR
		20	600	9-7/8	GRAVEL PACK		TOP POUR

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3917	POD NUMBER	1	TRN NUMBER	578203
LOCATION	243.33E.13.314				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	20	20	SURFACE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	20	80	60	TAN SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	80	120	40	GREY SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	120	150	30	RED SANDY CLAY & GREY SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	150	170	20	GREEN & RED SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	170	180	10	GREY SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	180	240	60	RED & GREY SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	240	280	40	GREY SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	280	320	40	RED & GREY SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	320	380	60	RED SANDSTONE	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	380	520	40	RED SANDSTONE W/BROWN CLAY	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
	520	600	80	RED SANDSTONE	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	30 GPM
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
					<input type="checkbox"/> Y <input type="checkbox"/> N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="checkbox"/> PUMP					TOTAL ESTIMATED WELL YIELD (gpm): 30	
<input checked="" 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: WELL TESTED WITH A TEST PUMP					
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: CASEY KEY					
6. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:					
	 YOGI HURFORD SIGNATURE OF DRILLER / PRINT SIGNEE NAME				03-11-2016 DATE	

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-3917	POD NUMBER	1	TRN NUMBER	578203
LOCATION	24S.33E.13.314				PAGE 2 OF 2



Ecological site R070BD003NM Loamy Sand

Accessed: 11/14/2024

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	0–9%
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

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"	0–10%
Surface fragment cover >3"	0%
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)	0–2
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)	0%

Ecological dynamics

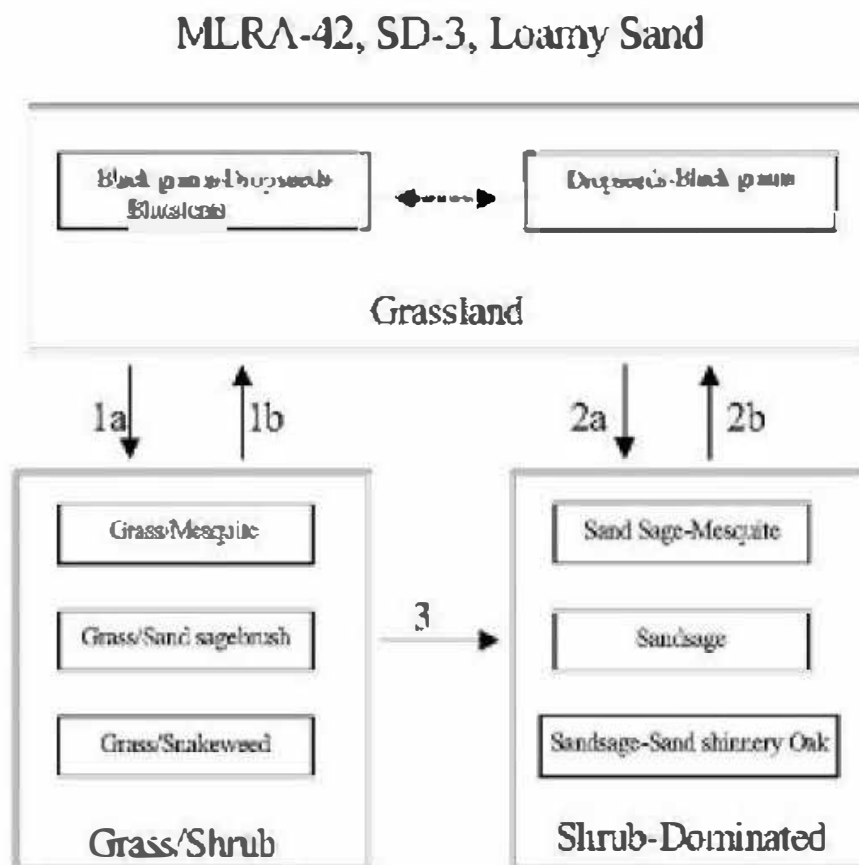
Overview

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

Plant Communities and Transitional Pathways (diagram):



1a. Drought, over grazing, fire suppression.

1b. Brush control, prescribed grazing.

2a. Severe loss of grass cover, fire suppression, erosion.

2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

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 blueslems. 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 .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

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 drop seeds 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 (Bilton and Wright 1971). **Diagnosis:** This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Drop seeds 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 drop seeds, 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 drop seed/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/threawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threawn 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, horseback 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, black 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, shiner 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 +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.

Other references

Literature Cited:

Ansley, R. J.; Jacoby, P. W. 1998. Manipulation of fire intensity to achieve mesquite management goals in north Texas. In: Pruden, Teresa L.; Brennan, Leonard A., eds. Fire in ecosystem management: shifting the paradigm from suppression to prescription: Proceedings, Tall Timbers fire ecology conference; 1996 May 7-10; Boise, ID. No. 20. Tallahassee, FL: Tall Timbers Research Station: 195-204.

Ansley, R. J.; Jones, D. L.; Tunnell, T. R.; [and others]. 1998. Honey mesquite canopy responses to single winter fires: relation to herbaceous fuel, weather and fire temperature. International Journal of Wildland Fire 8(4):241-252.

Britton, Carlton M.; Wright, Henry A. 1971. Correlation of weather and fuel variables to mesquite damage by fire. Journal of Range Management 24:136-141.

Davis, Joseph H., III and Bonham, Charles D. 1979. Interference of sand sagebrush canopy with needleandthread. Journal of Range Management 32(5):384-386.

Herbel, C. H, Steger, R, Gould, W. L. 1974. Managing semidesert ranges of the Southwest Circular 456. Las Cruces, NM: New Mexico State University, Cooperative Extension Service. 48 p.

McDaniel, Kirk C.; Pieper, Rex D.; Loomis, Lyn E.; Osman, Abdelgader A. 1984. Taxonomy and ecology of perennial snakeweeds in New Mexico. Bulletin 711. Las Cruces, NM: New Mexico State University, Agricultural Experiment Station. 34 p.

McPherson, Guy R. 1995. The role of fire in the desert grasslands. In: McClaran, Mitchel P.; Van Devender, Thomas R., eds. The desert grassland. Tucson, AZ: The University of Arizona Press: 130-151.

Pettit, Russell D. 1986. Sand shinnery oak: control and management. Management Note 8. Lubbock, TX: Texas Tech University, College of Agricultural Sciences, Department of Range and Wildlife Management. 5 p.

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

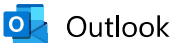
3. Number and height of erosional pedestals or terracettes:

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):

5. Number of gullies and erosion associated with gullies:

6. Extent of wind scoured, blowouts and/or depositional areas:

ATTACHMENT 3: CORRESPONDENCE



RE: [EXTERNAL] nAPP2432330772 Broadside 12 Facility 2 Liner Inspection Notification

From Raley, Jim <jim.rale@dv.com>
Date Tue 12/10/2024 7:40 AM
To Monica Peppin <Monica.Peppin@soudermiller.com>
Cc ocd.enviro@emnrd.nm.gov <OCD.Enviro@emnrd.nm.gov>; Stephanie Hinds <stephanie.hinds@soudermiller.com>

Submitted 12/10/2024

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



From: Monica Peppin <Monica.Peppin@soudermiller.com>
Sent: Tuesday, December 10, 2024 5:30 AM
To: Raley, Jim <Jim.Raley@dv.com>
Cc: ocd.enviro@emnrd.nm.gov; Stephanie Hinds <stephanie.hinds@soudermiller.com>
Subject: [EXTERNAL] nAPP2432330772 Broadside 12 Facility 2 Liner Inspection Notification

ALL:
SMA anticipates conducting liner inspection activities at the following site on December 12, 2024:
Proposed Date: 12.12.24
Proposed Time Frame: 8:00 AM/12:00 PM
Site Name: Broadside 12 Facility 2
Incident Number: nAPP2432330772
API: fAPP2209631775

Site Name and Incident ID:	Broadside 12 Facility 2 nAPP2432330772
Containment surface area:	4,865 square feet
Have all 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	12.12.2024
Time liner inspection will commence:	8:00 AM
Contact information:	Monica Peppin 575-909-3418
Navigation to site:	128 & Delaware Basin travel north for 1 mile, turn left onto lease rd travel west for 0.38 miles, turn right travel north for 0.11 miles, turn left travel 0.06 miles, and dead end on site

Thank you,
MP



Stronger Communities by Design

**Monica
Peppin, A.S.**

**Project
Manager**

**Direct/Mobile:
575.909.3418**

**Office:
575.689.7040**

**201 S
Halagueno St.**

**Carlsbad, NM
88220**



www.soudermiller.com

Corporate Registrations: AZ Engineering/Geology/Surveying Firm (14070), FL Engineering Firm (34203), ID Engineering/Surveying Firm (C-3564), ND Engineering Firm (28545PE), OK Engineering Firm (8498), SD Surveying Firm (C-7436), TX Engineering Firm (8877), TX Geology Firm (50254), TX Surveying Firm (10162200), WY Engineering/Surveying Firm (S-1704)

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Phone: (505) 476-3441

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Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/ocd/contact-us>

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

QUESTIONS

Action 428335

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 428335
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2432330772
Incident Name	NAPP2432330772 BROADSIDE 12 FACILITY 2 @ 0
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Facility	[fAPP2209631775] BROADSIDE 12 FACILITY 2

Location of Release Source	
Please answer all the questions in this group.	
Site Name	BROADSIDE 12 FACILITY 2
Date Release Discovered	11/16/2024
Surface Owner	Private

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 Pump Produced Water Released: 13 BBL Recovered: 13 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)	Flange on water transfer pump developed leak. Allowing release of 13 bbls to lined containment, fluids fully recovered.

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QUESTIONS, Page 2

Action 428335

QUESTIONS (continued)

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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	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response

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

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

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

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

I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dv.com Date: 02/05/2025
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QUESTIONS, Page 3

Action 428335

QUESTIONS (continued)

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	Action Number: 428335
	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 1 and 5 (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	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 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	
<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	11/18/2024
On what date will (or did) the final sampling or liner inspection occur	12/12/2024
On what date will (or was) the remediation complete(d)	12/12/2024
What is the estimated surface area (in square feet) that will be remediated	4865
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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QUESTIONS, Page 4

Action 428335

QUESTIONS (continued)

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	Action Number: 428335
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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: 02/05/2025
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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Action 428335

QUESTIONS (continued)

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	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Liner Inspection Information	
Last liner inspection notification (C-141L) recorded	410206
Liner inspection date pursuant to Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC	12/12/2024
Was all the impacted materials removed from the liner	Yes
What was the liner inspection surface area in square feet	4865

Remediation Closure Request

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

Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	Yes
What was the total surface area (in square feet) remediated	4865
What was the total volume (cubic yards) remediated	0
Summarize any additional remediation activities not included by answers (above)	Secondary Containment inspection completed. No breach through liner

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: 02/05/2025
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CONDITIONS

Action 428335

CONDITIONS

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CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your Remediation Closure Report for Incident #NAPP2432330772 BROADSIDE 12 FACILITY 2, thank you. This Remediation Closure Report is approved.	2/13/2025