Incident Number: NRM1932537495

# Incident Closure

## Helios 6 Federal 2H Battery

**Unit O, Section 6, Township 19 South, Range 31 East**
**Facility ID: fAPP2130253728**
**County: Eddy**
**Vertex File Number: 24E-02646**

**Prepared for:**
Devon Energy Production Company, LP

**Prepared by:**
Vertex Resource Services Inc.

**Date:**
October 2024

**Helios 6 Federal 2H Battery**
**Unit O, Section 6, Township 19 South, Range 31 East**
**Facility ID: fAPP2130253728**
**County: Eddy**

Prepared for:
**Devon Energy Production Company, LP**
150, 205 E. Bender Road
Hobbs, New Mexico 88240

**New Mexico Oil Conservation Division**
506 West Texas Avenue
Artesia, New Mexico 88210

Prepared by:
**Vertex Resource Services Inc.**
3101 Boyd Drive
Carlsbad, New Mexico 88220

Riley Plogger
Riley Plogger
ENVIRONMENTAL TECHNICIAN, REPORTING

10/16/2024
Date

Chance Dixon
Chance Dixon, B.Sc.
PROJECT MANAGER, REPORT REVIEW

10/16/2024
Date

## Table of Contents

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## 1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a liner inspection and an Incident Closure for a produced water release that occurred on August 19, 2019, at Helios 6 Federal 2H Battery, facility ID fAPP2130253728 (hereafter referred to as the "site"). Devon submitted an initial C-141 Release Notification to New Mexico Oil Conservation Division (NMOCD) on October 9, 2019. Incident ID number NRM1932537495 was assigned to this incident.

This report provides a description of the release assessment and liner inspection activities associated with the site. The information presented demonstrates that closure criteria established in 19.15.29.11(A)(5)(a) of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD has been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release as per NMAC 19.15.29.11, with the understanding that restoration is currently not required due to the release being contained in the lined tank battery.

## 2.0 Incident Description

The release occurred on August 19, 2019, due to a leaking seal on the transfer pump. The incident was reported on August 19, 2019, and involved the release of approximately 115 barrels (bbl.) of produced water into lined containment. Approximately 115 bbl. of free fluid was removed during the initial clean-up. The volume calculation is included in Appendix A. Additional details relevant to the release are presented in the C-141 Report. The Daily Field Report and site photographs are included in Appendix B.

## 3.0 Site Characteristics

The site is located approximately 33 miles southwest of Artesia, New Mexico. The legal location for the site is Unit O, Section 6, Township 19 South, Range 31 East in Eddy County, New Mexico. The release area is located on private property. An aerial photograph and site schematic are presented on Figure 1.

The location is typical of oil and gas exploration and production sites in the Permian Basin and is currently used for oil and gas storage.

## 4.0 Closure Criteria Determination

The nearest active well to the site is a New Mexico Office of the State Engineer (NMOSE) monitoring well located approximately 0.34 miles east of the site (United States Geological Survey, 2024). Data from 2013 shows the NMOSE borehole recorded a depth to groundwater of 55 feet below ground surface. Information pertaining to the depth to groundwater determination is included in Appendix B.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is a lakebed (National Wetlands Inventory) located approximately 0.23 miles northwest of the site (United States Fish and Wildlife Service, 2024). At the site, there are no continuously flowing watercourses or significant

watercourses, lakebeds, sinkholes, playa lakes or other critical water/community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

| **Closure Criteria Determination** | | | |
|---|---|---|---|
| **Site Name: Helios 6 Federal #002H Battery** | | | |
| **Spill Coordinates: 32.68311,-103.90651** | | **X: 602515.49** | **Y: 3616685.67** |
| **Site Specific Conditions** | | **Value** | **Unit** |
| 1 | Depth to Groundwater (nearest reference) | >105 | feet |
| | Distance between release and nearest DTGW reference | 1,792 | feet |
| | | 0.34 | miles |
| | Date of nearest DTGW reference measurement | July 31, 2024 | |
| 2 | Within 300 feet of any continuously flowing watercourse or any other significant watercourse | 1,240 | feet |
| 3 | Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark) | 14,091 | feet |
| 4 | Within 300 feet from an occupied residence, school, hospital, institution or church | 22,146 | feet |
| 5 | i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or** | 144,116 | feet |
| | ii) Within 1000 feet of any fresh water well or spring | 17,846 | feet |
| 6 | Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves | No | (Y/N) |
| 7 | Within 300 feet of a wetland | 3,015 | feet |
| 8 | Within the area overlying a subsurface mine | No | (Y/N) |
| | Distance between release and nearest registered mine | 20,137 | feet |
| 9 | Within an unstable area (Karst Map) | Low | Critical<br>High<br>Medium<br>Low |
| | Distance between release and nearest unstable area | 7,337 | feet |
| 10 | Within a 100-year Floodplain | >500 | year |
| | Distance between release and nearest FEMA Zone A (100-year Floodplain) | 14,338 | feet |
| 11 | Soil Type | Gravelly fine sandy laom | |
| 12 | Ecological Classification | Simona Shallow Sandy | |
| 13 | Geology | Qp-Piedmont Alluvial Deposits | |
| | **NMAC 19.15.29.12 E (Table 1) Closure Criteria** | >100' | <50'<br>51-100'<br>>100' |

## 5.0 Liner Inspection

Notification that a liner inspection was scheduled to be completed was provided to the NMOCD on October 1, 2024. Visual observation of the liner was completed on all sides and the base of the containment, around equipment, and of all seams in the liner on October 7, 2024. As evidenced in the Daily Field Report (Appendix B), it was verified that the liner was intact and had the ability to contain the release. The Daily Field Report with photographs of the liner inspection is included in Appendix B.

## 6.0 Closure Request

The release area was fully contained in the lined containment and meets the closure criteria of NMAC 19.15.29.11. Based on these findings, Devon requests that this release be closed.

Should you have any questions or concerns, please do not hesitate to contact Chance Dixon at 575-988-1472 or cdixon@vertexresource.com

## 7.0 References

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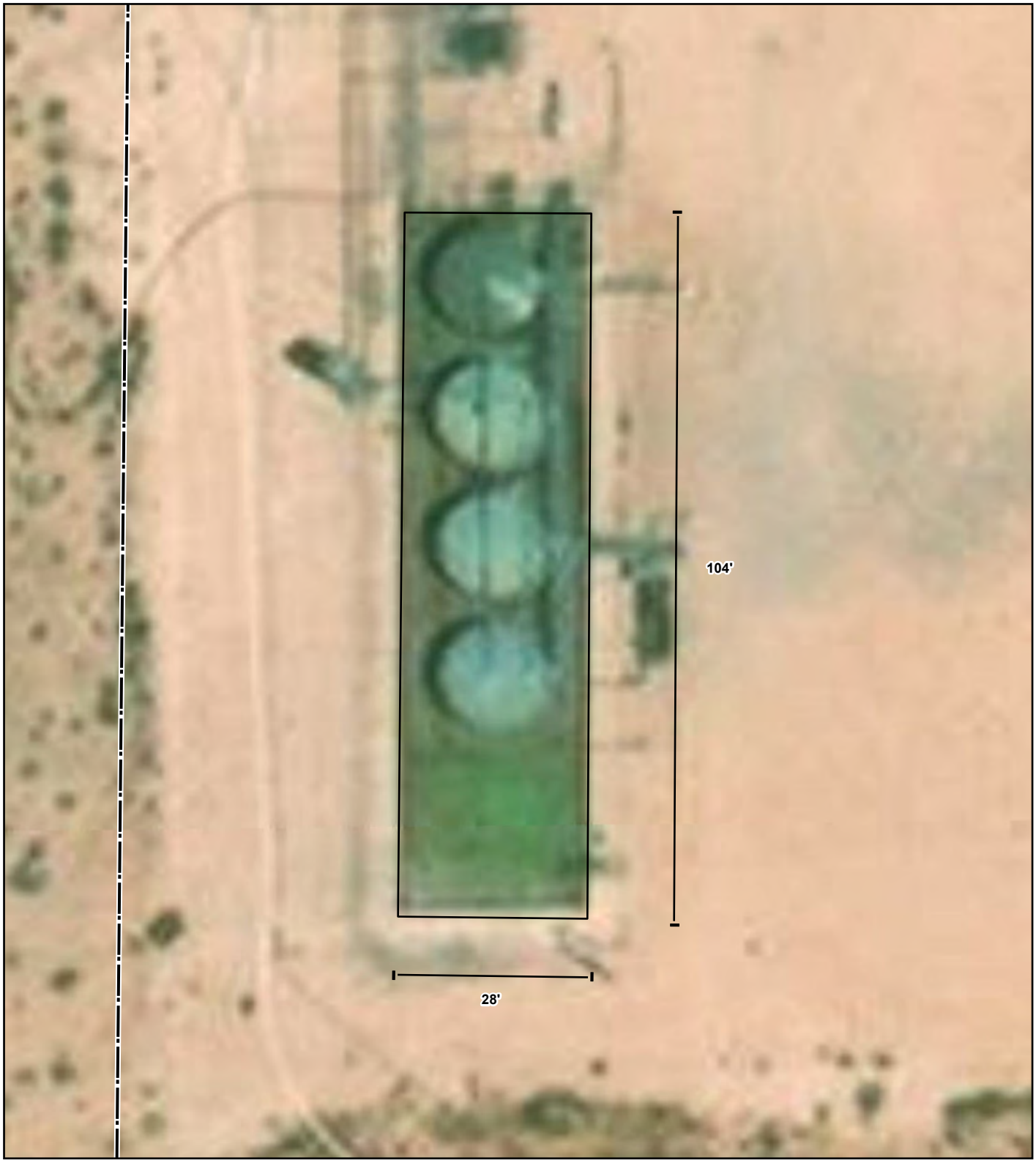
United States Geological Survey. (2024). *National Water Information System: Web Interface*. Retrieved from https://waterdata.usgs.gov/nwis

## 8.0 Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company, LP (Devon). This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division without the express written consent of Vertex Resource Services Inc. (Vertex) and Devon. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

# Figure 1 - Release Area Schematic




Approximate Lease Boundary

Containment (~ 2,908 sq. ft.)

VERTEX

0 5 10 20 ft

NAD 1983 UTM Zone 13N

Date: Oct 11/24

Map Center:
Lat: 32.682825°N,
Long:103.907008°W

N

**Tank Battery Liner Inspection**
**Helios 6 Fed 2H Battery**

FIGURE: 1

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Georeferenced image from Esri, 2020. Approximate lease boundary from imagery by Vertex Professional Services Ltd. (VPS), 2024. Site features from GPS by VPS, 2024.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects\ US PROJECTS\Devon Energy Corporation\2024\24E-02646 - Helios 6 Fed 2H Battery\Project\24E-02646.aprx

# APPENDIX A – Daily Field Report – Liner Inspection

# Daily Site Visit Report

| | | | |
|---|---|---|---|
| Client: | Devon Energy Corporation | Inspection Date: | 10/7/2024 |
| Site Location Name: | Helios 6 Fed 2H Battery | Report Run Date: | 10/8/2024 7:02 PM |
| Client Contact Name: | Shawn McCormick | API #: | |
| Client Contact Phone #: | 575-513-9171 | | |
| Unique Project ID | | Project Owner: | |
| Project Reference # | | Project Manager: | |

**Summary of Times**

| | |
|---|---|
| Arrived at Site | 10/7/2024 8:30 AM |
| Departed Site | 10/7/2024 9:31 AM |

# Daily Site Visit Report

## Field Notes

**9:04** Liner inspection confirmation.

## Next Steps & Recommendations

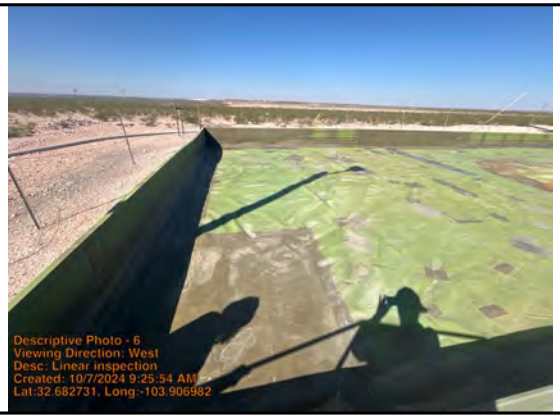
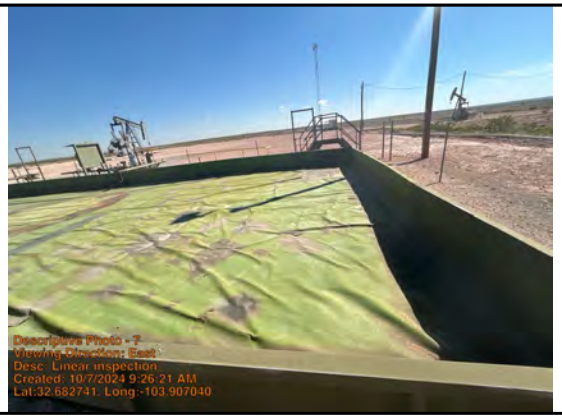
**1** Submit closure report

# Daily Site Visit Report

## Site Photos

| **Viewing Direction**: South | **Viewing Direction**: East |
|---|---|
|  |  |
| Linear inspection<br>No rips or tears in linear | Linear inspection<br>No rips or tears in linear |
| **Viewing Direction**: East | **Viewing Direction**: North |
|  |  |
| Linear inspection<br>No rips or tears in linear | Linear inspection<br>No rips or tears in linear |

# Daily Site Visit Report

| **Viewing Direction**: North | **Viewing Direction**: West |
|---|---|
|  |  |
| Linear inspection<br>No rips or tears in linear | Linear inspection<br>No rips or tears in linear |
| **Viewing Direction**: East | **Viewing Direction**: West |
|  |  |
| Linear inspection<br>No rips or tears in linear | Linear inspection<br>No rips or tears in linear |

# Daily Site Visit Report

| **Viewing Direction**: West |
| --- |
|  |
| Linear inspection<br>No rips or tears in liner |

| **Viewing Direction**: South |
| --- |
|  |
| Linear inspection<br>No rips or tears in liner |

| **Viewing Direction**: West |
| --- |
|  |
| Linear inspection<br>No rips or tears in liner |

# Daily Site Visit Report

## Daily Site Visit Signature

**Inspector:** Riley Plogger

**Signature:** 

# APPENDIX B – Closure Criteria Research Documentation

# WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

### 1. GENERAL AND WELL LOCATION

| OSE POD NO. (WELL NO.) | WELL TAG ID NO. | OSE FILE NO(S). |
|---|---|---|
| CP-01942 POD1 | | |

| WELL OWNER NAME(S) | PHONE (OPTIONAL) |
|---|---|
| Devon Energy | |

| WELL OWNER MAILING ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 6488 7 Rivers Hwy | Artesia | NM | 88210 |

| WELL LOCATION (FROM GPS) | | DEGREES | MINUTES | SECONDS | |
|---|---|---|---|---|---|
| | LATITUDE | 32 | 40 | 56.79 | N |
| | LONGITUDE | 103 | 54 | 4.32 | W |

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

### 2. DRILLING & CASING INFORMATION

| LICENSE NO. | NAME OF LICENSED DRILLER | NAME OF WELL DRILLING COMPANY |
|---|---|---|
| 1833 | Jason Maley | Vision Resources, Inc |

| DRILLING STARTED | DRILLING ENDED | DEPTH OF COMPLETED WELL (FT) | BORE HOLE DEPTH (FT) | DEPTH WATER FIRST ENCOUNTERED (FT) |
|---|---|---|---|---|
| 12/13/22 | 12/13/22 | 105 | 105 | none |

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT):

DATE STATIC MEASURED:

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) 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 | 80 | 6 | 2inch pvc sch 40 | thread | 2 | Sch 40 | |
| 80 | 100 | 6 | 2 inch pvc sch 40 | thread | 2 | Sch 40 | 0.20 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

OSE DIV FEB 13 2023 PM 1:05

### 3. ANNULAR MATERIAL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM. (inches) | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below) | AMOUNT (cubic feet) | METHOD OF PLACEMENT |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

| FILE NO. CP-1942 | POD NO. 1 | TRN NO. 740390 | |
|---|---|---|---|
| LOCATION 19S. 31E. 06 444 | | WELL TAG ID NO. NA | PAGE 1 OF 2 |

**4. HYDROGEOLOGIC LOG OF WELL**

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | 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) |
|---|---|---|---|---|---|
| 0 | 30 | 30 | red sand and white calichie | Y (N) | |
| 30 | 40 | 10 | fine red sand | Y (N) | |
| 40 | 50 | 10 | red clay | Y (N) | |
| 50 | 60 | 10 | pink sand and calichie | Y (N) | |
| 60 | 70 | 10 | red clay moist | Y (N) | |
| 70 | 80 | 10 | pink sandy calichie | Y (N) | |
| 80 | 105 | 25 | red fine sand | Y (N) | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
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| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER -- SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm):

**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:

OSE DII FEB 13 2023 PM1:05

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

**6. SIGNATURE**

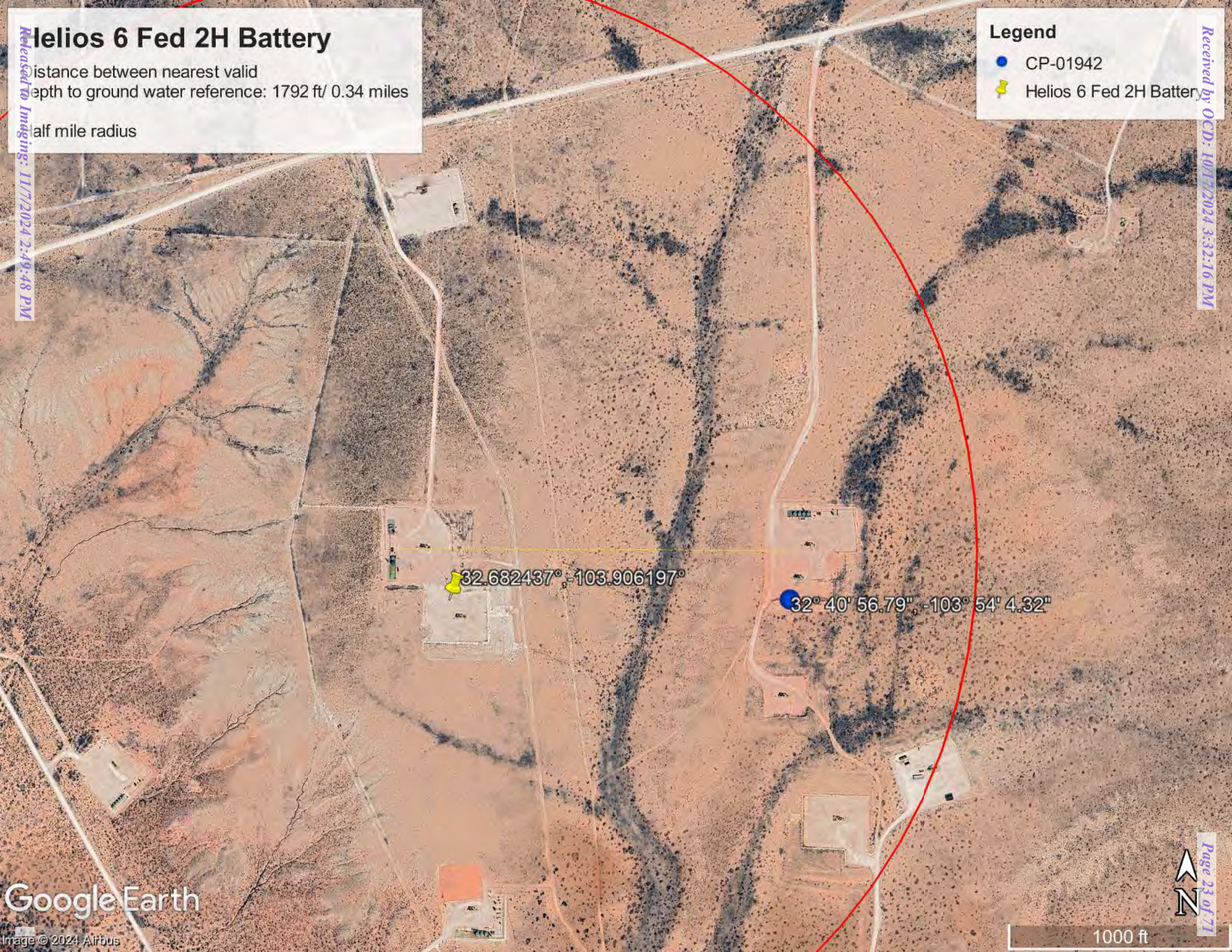
THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

J Maley Jason Maley — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

12/19/22 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

| FILE NO. CP- 1942 | POD NO. 1 | TRN NO. 740390 | |
|---|---|---|---|
| LOCATION 195.31E.06.444 | | WELL TAG ID NO. NA | PAGE 2 OF 2 |



# New Mexico Office of the State Engineer
# Water Column/Average Depth to Water

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

| POD Number | Code | POD Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Twn | Rng | X | Y | Distance | Depth Well | Depth Water | Water Column |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 01907 POD1 | | CP | ED | 4 | 2 | 2 | 18 | 19S | 31E | 603017 | 3614737 | 2012 | | | |
| CP 01985 POD1 | | CP | ED | 2 | 4 | 2 | 17 | 19S | 31E | 604666 | 3614438 | 3110 | 55 | | |
| CP 00873 POD1 | | CP | LE | | 1 | 1 | 19 | 19S | 31E | 601772 | 3613147* | 3615 | 340 | 180 | 160 |
| CP 01943 POD1 | | CP | ED | 1 | 3 | 1 | 20 | 19S | 31E | 603217 | 3612883 | 3866 | 55 | | |
| CP 00767 POD1 | | CP | ED | | 3 | 2 | 35 | 18S | 30E | 599300 | 3619158* | 4056 | 500 | | |
| CP 00357 POD1 | | CP | ED | 4 | 4 | 1 | 24 | 19S | 30E | 600667 | 3612631* | 4456 | 630 | | |
| CP 00829 POD1 | | CP | LE | | 2 | 4 | 16 | 19S | 31E | 606165 | 3614009* | 4525 | 120 | | |
| CP 00357 POD2 | | CP | ED | 4 | 3 | 1 | 24 | 19S | 30E | 600265 | 3612627* | 4640 | 630 | | |
| CP 00647 POD1 | O | CP | ED | 4 | 2 | 2 | 15 | 19S | 30E | 598235 | 3614621* | 4752 | 200 | 92 | 108 |
| CP 00818 POD1 | | CP | LE | | 1 | 4 | 26 | 18S | 30E | 599289 | 3620364* | 4892 | 240 | | |

Average Depth to Water: **136 feet**
Minimum Depth: **92 feet**
Maximum Depth: **180 feet**

**Record Count:** 10

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 602515.49 **Northing (Y):** 3616685.67 **Radius:** 5000

***UTM location was derived from PLSS - see Help**



5/13/24 11:03 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

*New Mexico Office of the State Engineer*

# Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

| Well Tag | POD Number | Q64 | Q16 | Q4 | Sec | Tws | Rng | X | Y |
|---|---|---|---|---|---|---|---|---|---|
| NA | CP 01907 POD1 | 4 | 2 | 2 | 18 | 19S | 31E | 603017 | 3614737 |

**Driller License:** 1249 **Driller Company:** ATKINS ENGINEERING ASSOC. INC.

**Driller Name:** JACKIE ATKINS

**Drill Start Date:** 07/13/2022 **Drill Finish Date:** 07/13/2022 **Plug Date:**

**Log File Date:** 08/11/2022 **PCW Rcv Date:** **Source:**

**Pump Type:** **Pipe Discharge Size:** **Estimated Yield:**

**Casing Size:** **Depth Well:** **Depth Water:**

| Casing Perforations: | Top | Bottom |
|---|---|---|
| | 0 | 55 |

U.S. Fish and Wildlife Service
National Wetlands Inventory

# Helios 6 Federal #002H Battery
# Watercourse 1,240ft


May 12, 2024

**Wetlands**

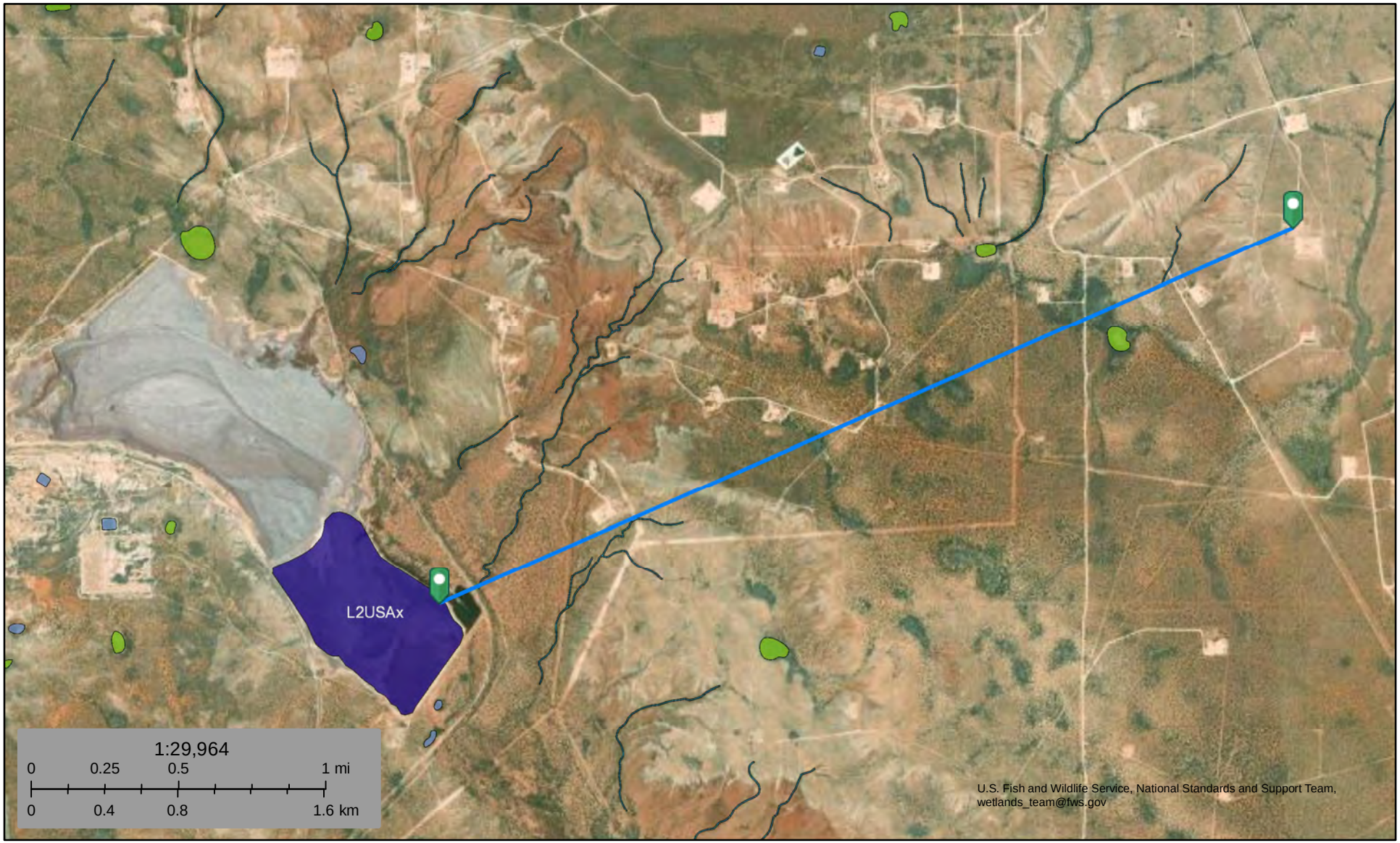
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service
National Wetlands Inventory

# Helios 6 Federal #002H Battery
# Lake 14,091ft




May 12, 2024

**Wetlands**

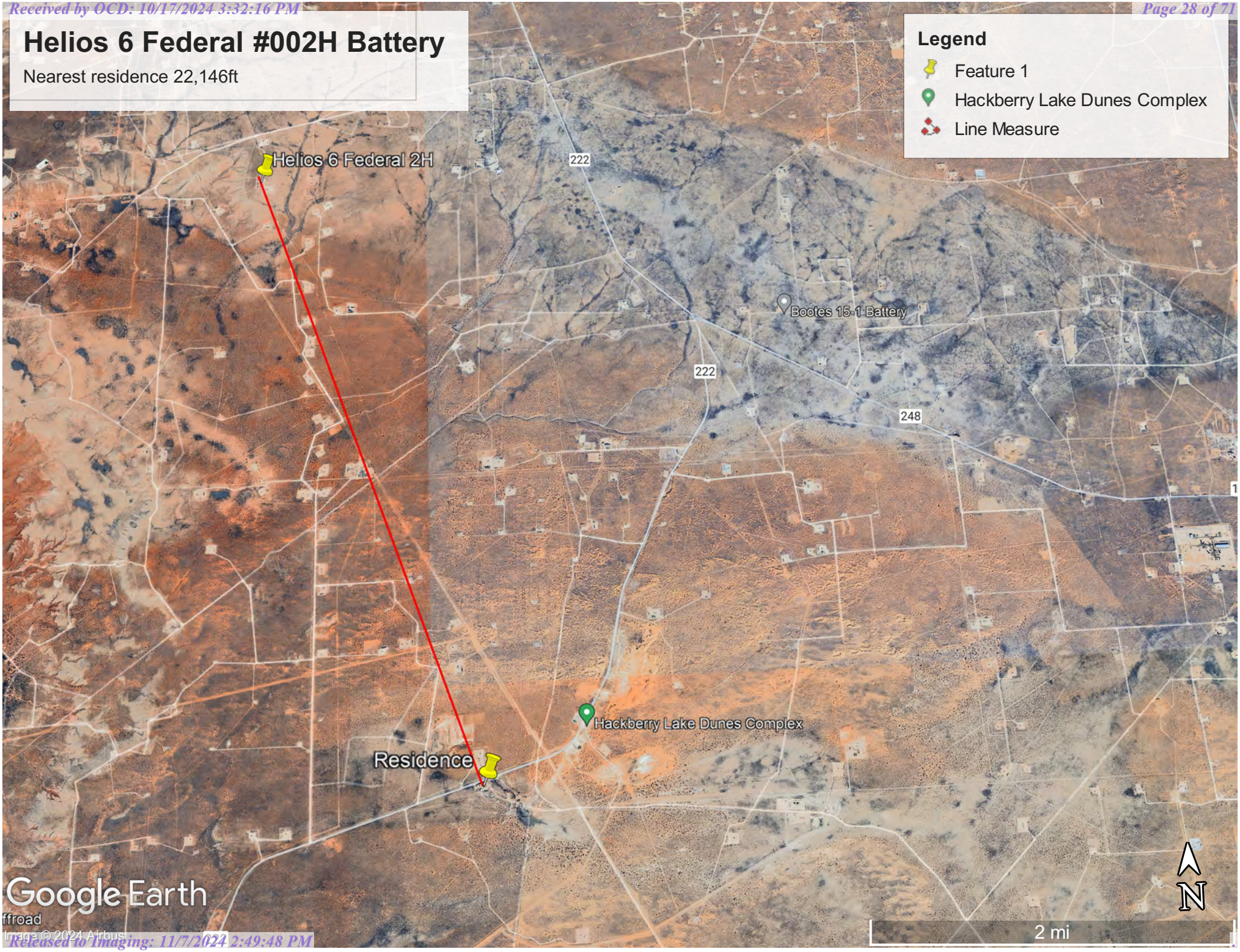
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

# Helios 6 Federal #002H Battery

Nearest residence 22,146ft



# Helios 6 Federal #002H Battery Well/Spring Distance 17,846ft


5/13/2024, 10:04:07 AM

Override 1

1:36,112

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Esri, HERE, Garmin, Esri, HERE, Maxar



Online web user

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

# New Mexico Office of the State Engineer
# Water Right Summary

get image list

**WR File Number:** CP 00822 **Subbasin:** CP **Cross Reference:** -

**Primary Purpose:** PLS NON 72-12-1 LIVESTOCK WATERING

**Primary Status:** DCL DECLARATION

**Total Acres:** 0 **Subfile:** - **Header:** -

**Total Diversion:** 3 **Cause/Case:** -

**Owner:** SNYDER RANCHES

**Contact:** LARRY C. SQUIRES

## Documents on File

| | Trn # | Doc | File/Act | Status 1 | Status 2 | Transaction Desc. | From/ To | Acres | Diversion | Consumptive |
|---|---|---|---|---|---|---|---|---|---|---|
| get images | 548060 | DCL | 1993-11-12 | DCL | PRC | CP 00822 | T | 0 | 3 | |

## Current Points of Diversion

(NAD83 UTM in meters)

| POD Number | Well Tag | Source | Q 64 | Q16 | Q4 | Sec | Tws | Rng | X | Y | Other Location Desc |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 00822 POD1 | | Shallow | 4 | 4 | 15 | 19S | 30E | | 598148 | 3613516* | |

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

## Priority Summary

| Priority | Status | Acres | Diversion | Pod Number | |
|---|---|---|---|---|---|
| 12/31/1950 | DCL | 0 | 3 | CP 00822 POD1 | Shallow |

## Place of Use

| Q 256 | Q 64 | Q16 | Q4 | Sec | Tws | Rng | Acres | Diversion | CU | Use | Priority | Status | Other Location Desc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 0 | 3 | | PLS | 12/31/1950 | DCL | NO PLACE OF USE GIVEN |

## Source

| Acres | Diversion | CU | Use | Priority | Source | Description |
|---|---|---|---|---|---|---|
| 0 | 3 | | PLS | 12/31/1950 | GW | |

U.S. Fish and Wildlife Service
National Wetlands Inventory

# Helios 6 Federal #002H Battery
# Wetland 3,015ft


May 12, 2024

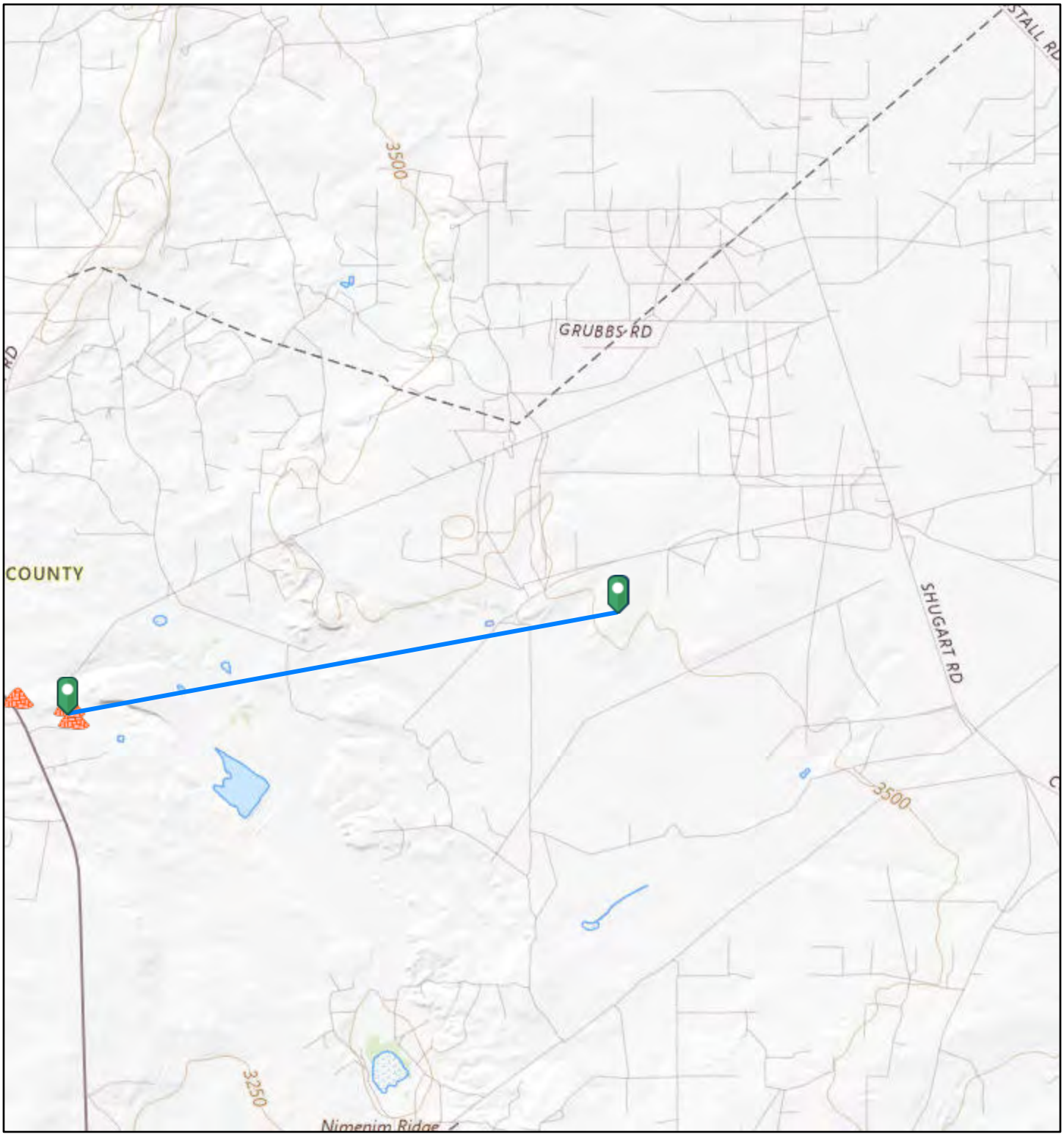
**Wetlands**

- 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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

# Helios 6 Federal #002H Battery Mine 20,137ft




5/12/2024, 11:34:52 AM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

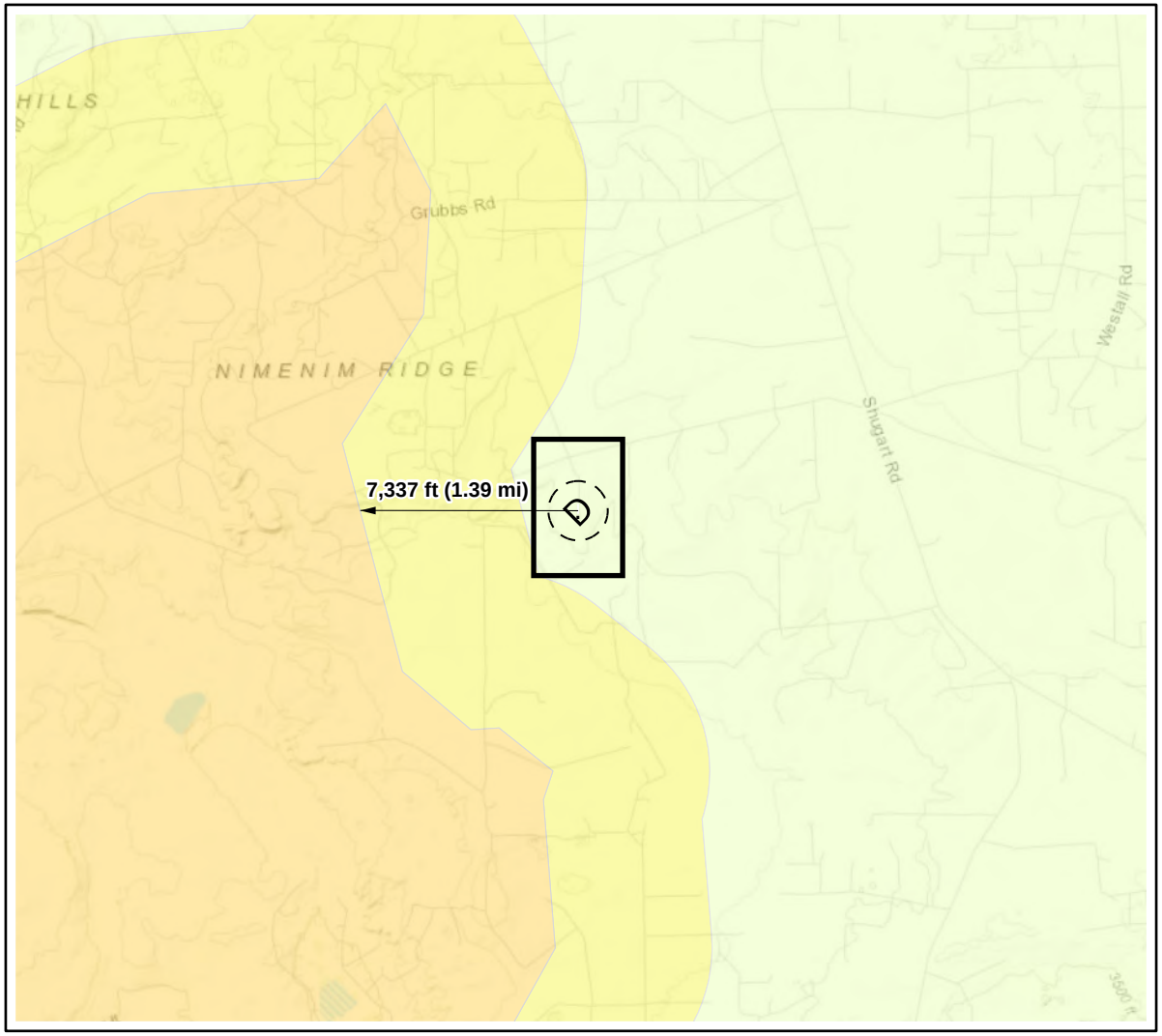
Registered Mines

Potash

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 National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S.

EMNRD MMD GIS Coordinator

NM EMNRD Mining and Mineral Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)




**Karst Potential**

- Critical
- High
- Medium
- Low

Site Location

Site Buffer (1000 ft.)

**Overview Map**

0 0.25 0.5 1 mi

**Detail Map**

0 150 300 600 ft

VERTEX

Map Center:
Lat/Long
32.682437°,-103.906197°

NAD 1983 UTM Zone 13N
Date: May 15/24

**Karst Potential Map**
**Helios 6 Fed 2H Battery**

Figure:
X

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, Esri 2022; Overview Map: Esri World Topographic. Karst potential data sources from Roswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management, (2018). Karst Potential.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2024\24E-02646 - Helios 6 Fed 2H Battery\Project\24E-02646.aprx

# National Flood Hazard Layer FIRMette

FEMA

103°54'42"W 32°41'14"N


103°54'5"W 32°40'44"N

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

1:6,000

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, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

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

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

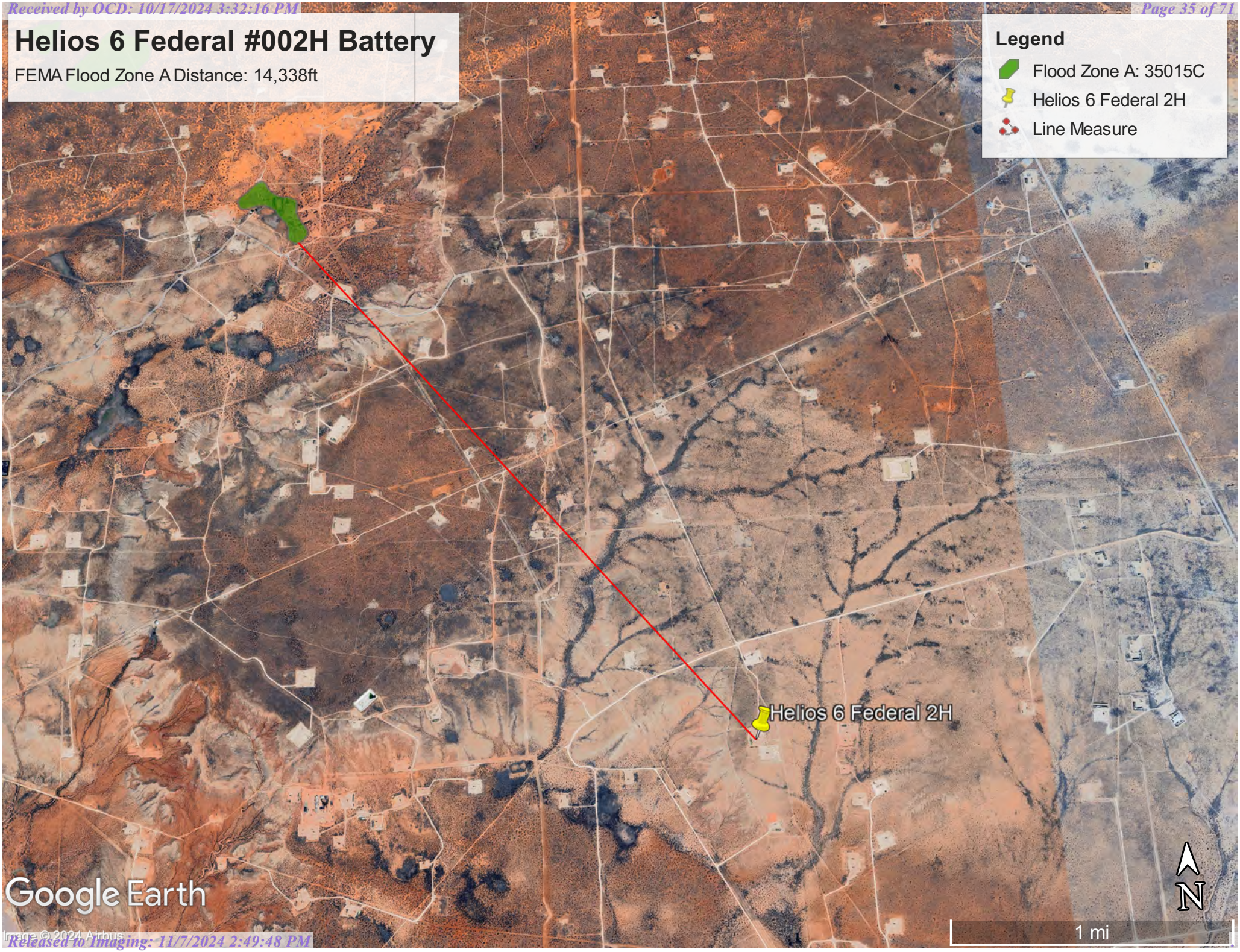
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/12/2024 at 1:50 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.

# Helios 6 Federal #002H Battery

FEMA Flood Zone A Distance: 14,338ft



United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

# Custom Soil Resource Report for Eddy Area, New Mexico


May 12, 2024

# Preface

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

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

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

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

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

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

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# Contents

# How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

# Soil Map

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

# Custom Soil Resource Report
## Soil Map

## 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: Eddy Area, New Mexico
Survey Area Data: Version 19, Sep 7, 2023

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

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

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

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| PS | Potter-Simona complex, 5 to 25 percent slopes | 2.5 | 30.8% |
| SG | Simona gravelly fine sandy loam, 0 to 3 percent slopes | 5.6 | 69.2% |
| **Totals for Area of Interest** | | **8.2** | **100.0%** |

# Map Unit Descriptions

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

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

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

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

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

# Eddy Area, New Mexico

## PS—Potter-Simona complex, 5 to 25 percent slopes

### Map Unit Setting

*National map unit symbol:* 1w57
*Elevation:* 2,750 to 5,000 feet
*Mean annual precipitation:* 8 to 16 inches
*Mean annual air temperature:* 57 to 70 degrees F
*Frost-free period:* 180 to 230 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Potter and similar soils:* 80 percent
*Simona and similar soils:* 15 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Potter

#### Setting

*Landform:* Ridges, hills
*Landform position (two-dimensional):* Shoulder, backslope, footslope, toeslope
*Landform position (three-dimensional):* Side slope, head slope, nose slope, crest
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Alluvium

#### Typical profile

*H1 - 0 to 10 inches:* gravelly loam
*H2 - 10 to 60 inches:* cemented material

#### Properties and qualities

*Slope:* 5 to 25 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 60 percent
*Maximum salinity:* Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Very low (about 1.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7s
*Hydrologic Soil Group:* D
*Ecological site:* R070BC025NM - Shallow
*Hydric soil rating:* No

### Description of Simona

#### Setting

*Landform:* Plains, alluvial fans
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Parent material:* Mixed alluvium and/or eolian sands

#### Typical profile

*H1 - 0 to 11 inches:* gravelly fine sandy loam
*H2 - 11 to 19 inches:* gravelly fine sandy loam
*H3 - 19 to 60 inches:* cemented material

#### Properties and qualities

*Slope:* 5 to 10 percent
*Depth to restrictive feature:* 7 to 20 inches to petrocalcic
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 15 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Very low (about 2.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R070BD002NM - Shallow Sandy
*Hydric soil rating:* No

### Minor Components

#### Simona

*Percent of map unit:* 3 percent
*Ecological site:* R070BD002NM - Shallow Sandy
*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## SG—Simona gravelly fine sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 1w5w
*Elevation:* 2,750 to 5,000 feet
*Mean annual precipitation:* 8 to 16 inches
*Mean annual air temperature:* 57 to 70 degrees F
*Frost-free period:* 180 to 230 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Simona and similar soils:* 95 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Simona

#### Setting

*Landform:* Plains, alluvial fans
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Parent material:* Mixed alluvium and/or eolian sands

#### Typical profile

*H1 - 0 to 19 inches:* gravelly fine sandy loam
*H2 - 19 to 23 inches:* indurated

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* 7 to 20 inches to petrocalcic
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 15 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 1.0
*Available water supply, 0 to 60 inches:* Very low (about 2.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R070BD002NM - Shallow Sandy
*Hydric soil rating:* No

**Minor Components**

**Simona**

*Percent of map unit:* 4 percent
*Ecological site:* R070BD002NM - Shallow Sandy
*Hydric soil rating:* No

**Playa**

*Percent of map unit:* 1 percent
*Landform:* Playas
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Concave, convex
*Across-slope shape:* Concave, linear
*Ecological site:* R070BC017NM - Bottomland
*Hydric soil rating:* Yes

# References

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USDA Natural Resources Conservation Service

# Ecological site R070BD002NM
# Shallow Sandy

Accessed: 05/12/2024

## 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**<br>Sandy sites often occur in association or in a complex with Shallow Sandy Sites. |

## Similar sites

| | |
|---|---|
| R070BD004NM | **Sandy**<br>Sandy ecological sites are similar to Shallow Sandy sites in species composition and Transition pathways. |

**Table 1. Dominant plant species**

| | |
|---|---|
| Tree | Not specified |
| Shrub | Not specified |
| Herbaceous | Not specified |

## Physiographic features

This site occures on plains, alluvial fans, uplands, or fan piedmonts. The parent material consists of mixed loamy alluvium or eolian material derived from igneous and sedimentory bedrock. The petrocalcic layer is at a depth of 10 to 25 inches and undulating.

Slopes are nearly level to undulating, usually less than 9 percent. Elevations range from 2,842 to 4,500 feet.

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Plain<br>(2) Fan piedmont<br>(3) Alluvial fan |
| Elevation | 2,842–4,500 ft |
| Slope | 1–9% |
| 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 from 207 to 220 days. The last killing frost is in late March or early April, and the first killing frost is in late 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 the site. The vegetation of this site can take advantage of the moisture and the time it falls. Because of the soil profile, little moisture can be stored in the soil for any length of time. Moisture is readily available to the plants from the time it falls. Strong winds from the southwest blow from January through June which rapidly dries out the soil profile during a critical period for 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 very shallow to shallow, less than 20 inches in depth. Surface and subsurface textures are gravelly loamy sand, gravelly fine sandy loam or fine sandy loam.

An indurated calache layer occurs at depths of 6 to 25 inches and is at an average of 15 inches from the surface. Underlying material textures are very gravelly fine sandy loam, very gravelly sandy loam, gravelly fine sandy loam. Gravels are calcium carbonate concretions, calcium carbonate content ranges from 30 to 65 percent.

The indurated caliche layer typically holds water up in the profile for short periods within the root zone of plants. These soils will blow if left unprotected by vegetation.

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

Characteristic soils are:
Simona
Jerag

**Table 4. Representative soil features**

| | |
|---|---|
| Surface texture | (1) Fine sandy loam<br>(2) Loamy fine sand<br>(3) Gravelly fine sandy loam |
| Family particle size | (1) Loamy |
| Drainage class | Well drained to moderately well drained |
| Permeability class | Moderately slow to moderate |

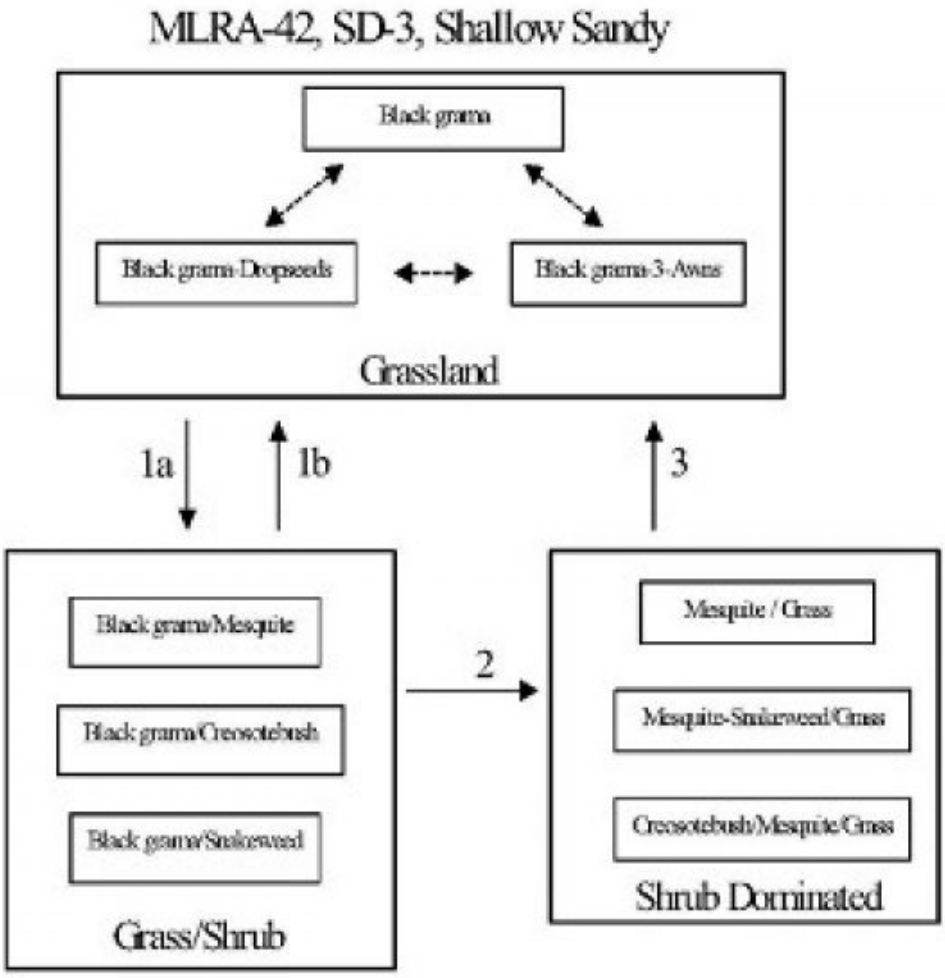
| | |
|---|---|
| Soil depth | 7–24 in |
| Surface fragment cover <=3" | 5–25% |
| Surface fragment cover >3" | 0% |
| Available water capacity (0-40in) | 1–2 in |
| Calcium carbonate equivalent (0-40in) | 5–15% |
| Electrical conductivity (0-40in) | 0–4 mmhos/cm |
| Sodium adsorption ratio (0-40in) | 0 |
| Soil reaction (1:1 water) (0-40in) | 7.4–8 |
| Subsurface fragment volume <=3" (Depth not specified) | 5–25% |
| Subsurface fragment volume >3" (Depth not specified) | 0% |

## Ecological dynamics

Overview
The Shallow Sandy site occurs on upland plains, and tops of low ridges and mesas, associated with Sandy, Loamy Sand, and Shallow sites. Coarse to moderately coarse soil surface textures, shallow depth (<20 inches) to an indurated caliche layer (petrocalcic horizon), and an overwhelming dominance by black grama help to distinguish this site. The historic plant community of the Shallow Sandy site is a black grama dominated grassland sparsely dotted with shrubs. Shrubs, especially mesquite and creosotebush can increase or colonize due to the dispersal of shrub seeds by livestock or wildlife. This increase in mesquite and colonization of creosotebush may be enhanced by proximity to areas with existing high shrub densities. Fire suppression, and the loss of grass cover due to overgrazing or drought may facilitate the increase and encroachment of shrubs. Persistent loss of grass cover, competition for resources by shrubs, and periods of climate with increased winter precipitation and dry summers, may initiate the transition to a shrub-dominated state.

## State and transition model

**Plant Communities and Transitional Pathways (diagram)**




1a. Seed dispersal, drought, overgrazing, fire suppression.
1b. Prescribed fire, brush control, prescribed grazing.

2. Persistent loss of grass cover, resource competition, increased winter precipitation.

3. Brush control, range seeding, prescribed grazing.

## State 1
## Historic Climax Plant Community

### Community 1.1
### Historic Climax Plant Community

Grassland: This site responds well to management and is resistant to state change, due to the shallow depth to petrocalcic horizon and sandy surface textures. The sandy surface textures allow rapid water infiltration and the petrocalcic horizon helps to keep water perched and available to shallow rooted grasses. Black grama is the dominant species in the historic plant community, averaging 50 to 60 percent of the total production for this site. Bush muhly, blue grama, and dropseeds are present as sub-dominants. Typically, yucca, javalinabush, range ratany, prickly pear, and mesquite are sparsely dotted across the landscape. Leatherweed croton, cutleaf

happlopappus, wooly groundsel, and threadleaf groundsel are common forbs. Continuous heavy grazing or extended periods of drought will cause a loss of grass cover characterized by a decrease in black grama, bush muhly, blue and sideoats grama, plains bristlegrass, and Arizona cottontop. Dropseeds and or threeawns may increase and become sub-dominant to black grama. Continued loss of grass cover in conjunction with dispersal of shrub seeds and fire suppression is believed to cause the transition to a state with increased amounts of shrubs (Grass/Shrub state). Diagnosis: Black grama is the dominant grass species. Grass cover uniformly distributed. Shrubs are a minor component averaging only two to five percent canopy cover. Litter cover is high (40-50 percent of area), and litter movement is limited to smaller size class litter and short distances (<. 5m). Other grasses that could appear on this site would include: six-weeks grama, fluffgrass, false-buffalograss, hairy grama, little bluestem, bristle panicum, cane bluestem, Indian ricegrass, tridens spp., and red lovegrass. Other woody plants include: pricklypear, cholla, fourwing saltbush, catclaw mimosa, winterfat, American tarbush and mesquite. Other forbs include: globemallow, verbena, desert holly, senna, plains blackfoot, trailing fleabane, fiddleneck, deerstongue, wooly Indianwheat, and locoweed.

**Table 5. Annual production by plant type**

| Plant Type | Low (Lb/Acre) | Representative Value (Lb/Acre) | High (Lb/Acre) |
|---|---|---|---|
| Grass/Grasslike | 474 | 652 | 830 |
| Forb | 78 | 107 | 136 |
| Shrub/Vine | 48 | 66 | 84 |
| **Total** | **600** | **825** | **1050** |

**Table 6. Ground cover**

| | |
|---|---|
| Tree foliar cover | 0% |
| Shrub/vine/liana foliar cover | 0% |
| Grass/grasslike foliar cover | 30-35% |
| Forb foliar cover | 0% |
| Non-vascular plants | 0% |
| Biological crusts | 0% |
| Litter | 40-50% |
| Surface fragments >0.25" and <=3" | 0% |
| Surface fragments >3" | 0% |
| Bedrock | 0% |
| Water | 0% |
| Bare ground | 15-25% |

**Figure 5. Plant community growth curve (percent production by month). NM2802, R042XC002NM-Shallow Sandy-HCPC. SD-3 Shallow Sandy - 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: This state is characterized by the notable presence of shrubs, especially mesquite, broom snakeweed, and/or creosotebush, however grasses remain as the dominant species. Black grama is the dominant

grass species. Threeawns and or dropseeds are sub-dominant. The susceptibility of the Shallow Sandy site to shrub encroachment may be higher when located adjacent to other sites with high densities of mesquite or creosotebush. Retrogression within this site is characterized by decreases in grass cover and increasing densities of shrubs. Diagnosis: Black grama remains as the dominant grass species. Grass cover varies in response to the amount of shrub increase, ranging from uniform to patchy. Shrubs are found at increased densities relative to the grassland state, especially mesquite, creosotebush, or broom snakeweed. Transition to Grass/Shrub (1a) Historically fire may have kept mesquite and other shrubs in check by completely killing some species and disrupting seed production cycles and suppressing the establishment of shrub seedlings in others. Fire suppression combined with seed dispersal by livestock and wildlife is believed to be the factors responsible for the establishment and increase in shrubs.1, 3 Loss of grass cover due to overgrazing, prolonged periods of drought, or their combination, reduces fire fuel loads and increases the susceptibility of the site to shrub establishment. Key indicators of approach to transition: Increase in the relative abundance of dropseeds and threeawns Presence of shrub seedlings Loss of organic matter—evidenced by an increase in physical soil crusts 8 Transition back to Grassland (1b) Brush control is necessary to initiate the transition back to the grassland state. If adequate fuel loads remain, possibly the reintroduction of fire as a management tool will assist in the transition back, however, mixed results have been observed concerning the effects of fire on black grama grasslands.6 Prescribed grazing will help ensure adequate rest following brush control and will assist in the establishment and maintenance of grass cover capable of sustaining fire.

## State 3
## Shrub Dominated

### Community 3.1
### Shrub Dominated

Shrub-Dominated: Across the range of soil types included in the Shallow Sandy site, mesquite is typically the dominant shrub, but it does occur as a co-dominant or sub-dominant species with creosotebush or broom snakeweed. Mesquite tends to dominate when the Shallow Sandy site occurs as part of a complex or in association with Sandy or Loamy Sand sites. Creosotebush tends to dominate on Shallow Sandy sites that occur as part of, or adjacent to Shallow Sites. Broom snakeweed increases in response to heavy grazing, but tends to cycle in and out depending on timing of rainfall. However, once the site is dominated by shrubs and snakeweed becomes well established, it tends to remain as a major component in the shrub dominated state. Diagnosis: Mesquite, creosotebush, or snakeweed cover is high, exceeding that of grasses. Grass cover is patchy with large connected bare areas present. Black grama, threeawns, or dropseeds may be the dominant grass. Evidence of accelerated wind erosion in the form of pedestalling of plants, and soil deposition around shrub bases may be common. Transition to Shrub-Dominated (2) Persistent loss of grass cover and the resulting increased competition between shrubs and remaining grasses for dwindling resources (especially soil moisture) may drive this transition.5 Additionally periods of increased winter precipitation may facilitate periodic episodes of shrub expansion and establishment. 4 Key indicators of approach to transition: Increase in size and frequency of bare patches. Loss of grass cover in shrub interspaces. Increased signs of erosion, evidenced by pedestalling of plants, and soil and litter deposition on leeward side of plants. 7 Transition back to Grassland (3) Brush control is necessary to reduce competition from shrubs and reestablish grasses. Range seeding may be necessary if insufficient grasses remain, The benefits, and costs, will vary depending upon the degree of site degradation, and adequate precipitation following seeding.

## 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** | | | 413–495 | |
| | black grama | BOER4 | *Bouteloua eriopoda* | 413–495 | – |
| 2 | **Warm Season** | | | 41–83 | |
| | bush muhly | MUPO2 | *Muhlenbergia porteri* | 41–83 | – |
| 3 | **Warm Season** | | | 41–83 | |

| | | | | | |
|---|---|---|---|---|---|
| | blue grama | BOGR2 | *Bouteloua gracilis* | 41–83 | – |
| 4 | **Warm Season** | | | 25–41 | |
| | sideoats grama | BOCU | *Bouteloua curtipendula* | 25–41 | – |
| 5 | **Warm Season** | | | 41–83 | |
| | spike dropseed | SPCO4 | *Sporobolus contractus* | 41–83 | – |
| | sand dropseed | SPCR | *Sporobolus cryptandrus* | 41–83 | – |
| | mesa dropseed | SPFL2 | *Sporobolus flexuosus* | 41–83 | – |
| 6 | **Warm Season** | | | 17–41 | |
| | threeawn | ARIST | *Aristida* | 17–41 | – |
| 7 | **Warm Season** | | | 41–83 | |
| | Arizona cottontop | DICA8 | *Digitaria californica* | 41–83 | – |
| | plains bristlegrass | SEVU2 | *Setaria vulpiseta* | 41–83 | – |
| 8 | **Warm Season** | | | 41–83 | |
| | mat sandbur | CELO3 | *Cenchrus longispinus* | 41–83 | – |
| | hooded windmill grass | CHCU2 | *Chloris cucullata* | 41–83 | – |
| 9 | **Other Perennial Grasses** | | | 25–41 | |
| | Grass, perennial | 2GP | *Grass, perennial* | 25–41 | – |
| **Shrub/Vine** | | | | | |
| 10 | **Shrub** | | | 8–25 | |
| | javelina bush | COER5 | *Condalia ericoides* | 8–25 | – |
| 11 | **Shrub** | | | 8–25 | |
| | yucca | YUCCA | *Yucca* | 8–25 | – |
| 12 | **Shrub** | | | 8–25 | |
| | jointfir | EPHED | *Ephedra* | 8–25 | – |
| | littleleaf ratany | KRER | *Krameria erecta* | 8–25 | – |
| 13 | **Shrub** | | | 8–25 | |
| | featherplume | DAFO | *Dalea formosa* | 8–25 | – |
| 14 | **Shrub** | | | 8–25 | |
| | broom snakeweed | GUSA2 | *Gutierrezia sarothrae* | 8–25 | – |
| 15 | **Other Shrubs** | | | 25–41 | |
| | Shrub (>.5m) | 2SHRUB | *Shrub (>.5m)* | 25–41 | – |
| **Forb** | | | | | |
| 16 | **Forb** | | | 17–41 | |
| | leatherweed | CRPOP | *Croton pottsii var. pottsii* | 17–41 | – |
| | Goodding's tansyaster | MAPIG2 | *Machaeranthera pinnatifida ssp. gooddingii var. gooddingii* | 17–41 | – |
| 17 | **Forb** | | | 17–41 | |
| | woolly groundsel | PACA15 | *Packera cana* | 17–41 | – |
| | threadleaf ragwort | SEFLF | *Senecio flaccidus var. flaccidus* | 17–41 | – |
| 18 | **Forb** | | | 8–25 | |
| | whitest evening primrose | OEAL | *Oenothera albicaulis* | 8–25 | – |
| 19 | **Other Forbs** | | | 8–25 | |
| | Forb (herbaceous, not grass nor grass-like) | 2FORB | *Forb (herbaceous, not grass nor grass-like)* | 8–25 | – |

## Animal community

This site provides habitats which support a resident animal community that is characterized by pronghorn antelope, swift fox, black-tailed jackrabbit, spotted ground squirrel, Ord's kangaroo rat, northern grasshopper mouse, coyote, horned lark, meadowlark, lark bunting, scaled quail, morning dove, side-blotched lizard, round-tailed horned lizard, marbled whiptail, prairie rattlesnake and ornate box turtle.

## 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
Jarag D
Simona D

## Recreational uses

This site offers recreation for hiking, horseback riding, nature observation and photography, and quail and dove hunting. During years of abundant spring moisture, this site displays a riot of color from wildflowers during May and June. A few summer and fall flowers also occur.

## Wood products

The natural potential plant community of this site affords little or no wood products. Where the site has been invaded by mesquite or cholla cactus the roots and stems of these plants provide attractive material for a variety of curiosities, such as lamps and small furniture.

## Other products

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. Because of the sandy textures and shallow profile, this site will respond rapidly to management. As this site deteriorates, plants such as black grama, bush muhly, blue and sideoats grama, plains bristlegrass and Arizona cottontop, will decrease and be replaced by plants such as threeawns, mesquite, creosote bush, and broom snakeweed. This also causes a decrease in ground cover, leaving the soil to blow. This site responds best 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 2.5 – 3.5
75 – 51 3.2 – 4.6
50 – 26 4.5 – 7.5
25 – 0 7.6 +

## 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

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## Contributors

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## 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:**

---

7. **Amount of litter movement (describe size and distance expected to travel):**

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

---

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

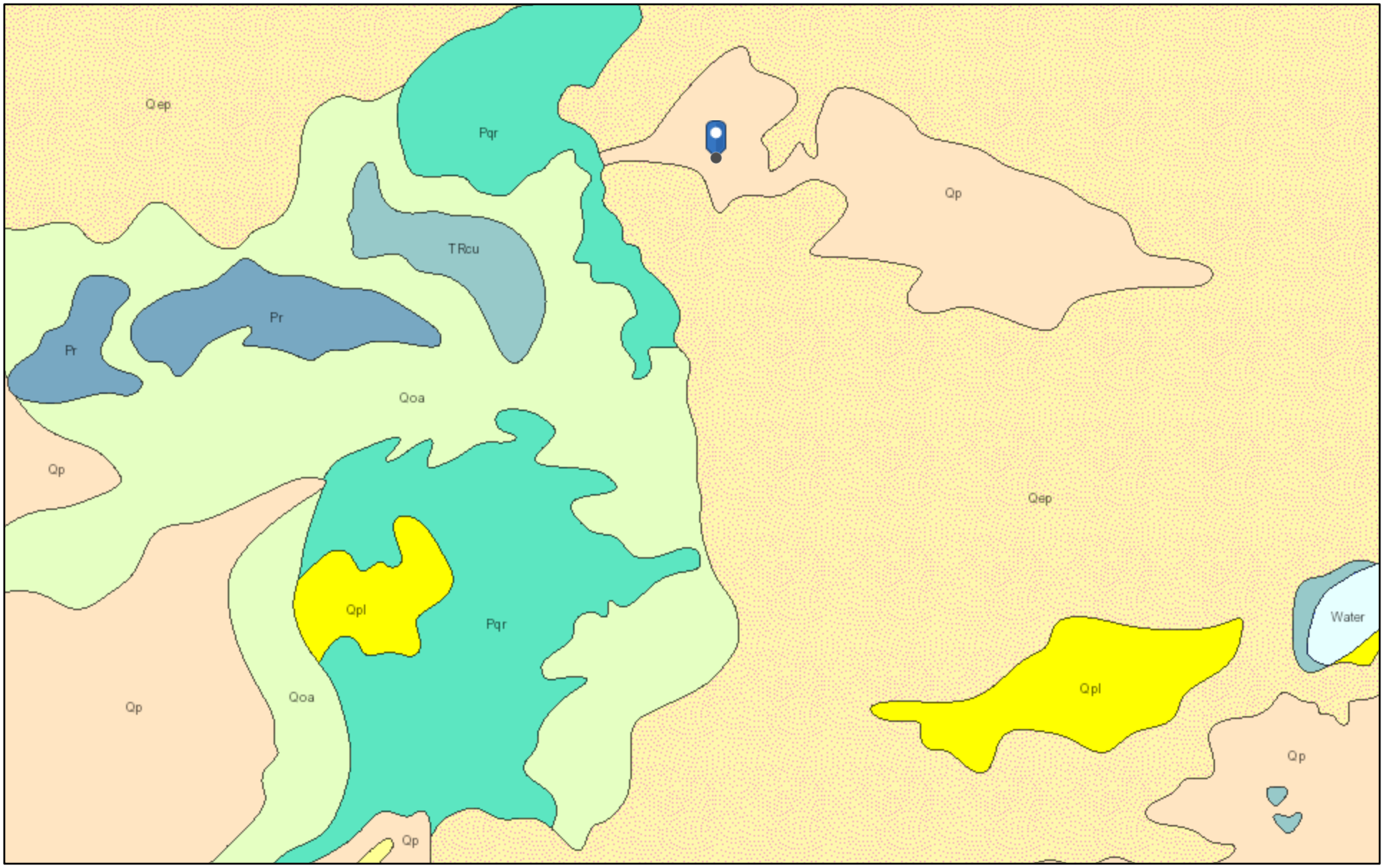
14. **Average percent litter cover (%) and depth ( in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**

# Helios 6 Federal #002H Geology

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0 1.5 3 6 km

Lithologic Units

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

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

ArcGIS Web AppBuilder

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 National Transportation Dataset; USGS Global

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

QUESTIONS

Action 393585

## QUESTIONS

| | |
|---|---|
| Operator:<br>DEVON ENERGY PRODUCTION COMPANY, LP<br>333 West Sheridan Ave.<br>Oklahoma City, OK 73102 | OGRID:<br>6137 |
| | Action Number:<br>393585 |
| | Action Type:<br>[C-141] Remediation Closure Request C-141 (C-141-v-Closure) |

**QUESTIONS**

| **Prerequisites** | |
|---|---|
| Incident ID (n#) | **nRM1932537495** |
| Incident Name | **NRM1932537495 HELIOS 6 FED 2H BATTERY @ 0** |
| Incident Type | **Produced Water Release** |
| Incident Status | **Remediation Closure Report Received** |

| **Location of Release Source** | |
|---|---|
| *Please answer all the questions in this group.* | |
| Site Name | HELIOS 6 FED 2H BATTERY |
| Date Release Discovered | 08/19/2019 |
| Surface Owner | Federal |

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

| **Nature and Volume of Release** | |
|---|---|
| *Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.* | |
| Crude Oil Released (bbls) Details | *Not answered.* |
| Produced Water Released (bbls) Details | Cause: Lightning \| Tank (Any) \| Produced Water \| Released: 115 BBL \| Recovered: 115 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) | *Not answered.* |

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## 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 | **Yes** |
| Reasons why this would be considered a submission for a notification of a major release | **From paragraph A. "Major release" determine using:**<br>**(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.** |
| *With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.* | |

| **Initial Response** | |
|---|---|
| *The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.* | |
| The source of the release has been stopped | True |
| The impacted area has been secured to protect human health and the environment | True |
| Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices | True |
| All free liquids and recoverable materials have been removed and managed appropriately | True |
| If all the actions described above have not been undertaken, explain why | *Not answered.* |
| *Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.* | |

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

| | |
|---|---|
| I hereby agree and sign off to the above statement | Name: Dale Woodall<br>Title: EHS Professional<br>Email: Dale.Woodall@dvn.com<br>Date: 10/17/2024 |

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## QUESTIONS (continued)

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|---|---|
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| | Action Number:<br>393585 |
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**QUESTIONS**

| **Site Characterization** | |
|---|---|
| *Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.* | |
| What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs) | Between 100 and 500 (ft.) |
| What method was used to determine the depth to ground water | NM OSE iWaters Database Search |
| Did this release impact groundwater or surface water | No |
| **What is the minimum distance, between the closest lateral extents of the release and the following surface areas:** | |
| A continuously flowing watercourse or any other significant watercourse | Between 1 and 5 (mi.) |
| Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark) | Between 1000 (ft.) and ½ (mi.) |
| An occupied permanent residence, school, hospital, institution, or church | 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 | Greater than 5 (mi.) |
| Incorporated municipal boundaries or a defined municipal fresh water well field | Between 1 and 5 (mi.) |
| A wetland | Between ½ and 1 (mi.) |
| A subsurface mine | Between 1 and 5 (mi.) |
| An (non-karst) unstable area | Between 1 and 5 (mi.) |
| Categorize the risk of this well / site being in a karst geology | Low |
| A 100-year floodplain | Between 1 and 5 (mi.) |
| Did the release impact areas not on an exploration, development, production, or storage site | No |

| **Remediation Plan** | |
|---|---|
| *Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.* | |
| Requesting a remediation plan approval with this submission | Yes |
| *Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.* | |
| Have the lateral and vertical extents of contamination been fully delineated | Yes |
| Was this release entirely contained within a lined containment area | Yes |
| *Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.* | |
| On what estimated date will the remediation commence | 10/07/2024 |
| On what date will (or did) the final sampling or liner inspection occur | 10/07/2024 |
| On what date will (or was) the remediation complete(d) | 10/07/2024 |
| What is the estimated surface area (in square feet) that will be remediated | 0 |
| What is the estimated volume (in cubic yards) that will be remediated | 0 |
| *These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.* | |
| *The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.* | |

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## QUESTIONS (continued)

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|---|---|
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**QUESTIONS**

| | |
|---|---|
| **Remediation Plan (continued)** | |
| *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.* | |
| **This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:** | |
| *(Select all answers below that apply.)* | |
| 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.* |
| *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 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: Dale Woodall<br>Title: EHS Professional<br>Email: Dale.Woodall@dvn.com<br>Date: 10/17/2024 |
| *The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.* | |

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## QUESTIONS (continued)

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**QUESTIONS**

| **Liner Inspection Information** | |
|---|---|
| Last liner inspection notification (C-141L) recorded | **388705** |
| Liner inspection date pursuant to Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC | **10/07/2024** |
| Was all the impacted materials removed from the liner | **Yes** |
| What was the liner inspection surface area in square feet | **3500** |

| **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 | 0 |
| What was the total volume (cubic yards) remediated | 0 |
| Summarize any additional remediation activities not included by answers (above) | Liner inspection was completed with no significant damage or breaches observed. |

*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: Dale Woodall<br>Title: EHS Professional<br>Email: Dale.Woodall@dvn.com<br>Date: 10/17/2024 |

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CONDITIONS

Action 393585

## CONDITIONS

| Operator: | OGRID: |
|---|---|
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**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| rhamlet | We have received your Remediation Closure Report for Incident #NRM1932537495 HELIOS 6 FED 2H BATTERY, thank you. This Remediation Closure Report is approved. | 11/7/2024 |