



26A-02189

Characterization Plan

Nicholas BJ #002

Incident I.D: nAPM2316026914

API: 30-015-23447

Coordinates: 32.68959, -104.49939

Prepared for:

Riley Exploration Permian, Inc.

Prepared by:

Vertex Resource Services, Inc.

Date:

April 2026

Riley Exploration Permian, Inc.

Nicholas BJ #002

Characterization Plan

April 2026

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Nicholas BJ #002

Incident I.D: nAPM2316026914

API: 30-015-23447

Coordinates: 32.68959, -104.49939

On behalf of:

Riley Exploration Permian, Inc.

500, 29 East Reno Avenue

Oklahoma City, Oklahoma 73104

Prepared for:

New Mexico Oil Conservation

508 West Texas Avenue

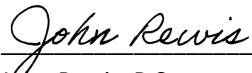
Artesia, New Mexico 88210

Prepared by:

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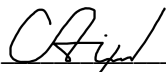


John Rewis, B.Sc.

ENVIRONMENTAL TECHNICIAN, REPORTING

4/22/2026

Date



Chance Dixon, B.Sc.

SENIOR PROJECT MANAGER, REPORT REVIEW

4/22/2026

Date

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1.0 Introduction

Riley Exploration Permian, Inc. retained Vertex Resource Services Inc. (Vertex) to complete an initial site assessment and Characterization Plan for Nicholas BJ #002. This Characterization Plan discusses actions conducted to date and proposes additional characterization activities for the open incident (nAPM2316026914) that was initiated on June 21, 2005.

2.0 Background

2.1 Site Description

The site is an active production pad for oil and gas operations including the battery and containment where the incident occurred (Figure 1). Surface and subsurface mineral ownership belongs to the Betty R. Howell, Revocable Trust. The site is situated in a mostly flat area surrounded by gravelly, sandy loam plains with grassy mesquite shrublands. Grama grasses and forbs are present on and off the pad.

3.0 Site Evaluation

Initial site assessment occurred on April 8, 2026, by Vertex personnel. The caliche production pad is intact. Vegetation is sparse throughout the pad and little to no vegetation exists in an area immediately east, north, and west of the containment due to the recent remediation and reclamation activities that occurred. Documentation of the site visit is included in the daily field report (Appendix B) and summarized below.

- The gas line referenced in Incident nAPM2316026914 ran east-west through the middle of the containment before the battery was rebuilt sometime between April 2013 and May 2014 according to historical imagery on Google Earth (Google Inc., 2026)
- The east, north, and west sides of the containment were previously remediated and reclaimed in 2022 (nAPP2127158905) with three strand barbed wire fencing around its perimeter. No observable staining was identified in the vicinity of the former gas line in question
- No observable staining was identified within the containment

3.1 Assessment of Soil Suitability

The site is in a medium karst potential area, therefore the most stringent Closure Criteria per Table 1 of *New Mexico Administrative Code* (NMAC) 19.15.29 applies (New Mexico Oil Conservation Division, 2018). Closure Criteria determination is summarized in Table 1 and visualized in the Closure Criteria Documentation in Appendix A. Closure Criteria is defined as:

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
≤ 50 feet	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – total dissolved solids

TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics

BTEX – benzene, toluene, ethylbenzene and xylenes

DTGW – depth to groundwater

bgs – below ground surface

For the purpose of this document, soil suitability is defined as:

- Suitable Soils – soils that meet the above Closure Criteria concentrations and consists of compositions that support vegetative growth (i.e., topsoil)
- Unsuitable Soils – soils that exceed the above Closure Criteria
- Undesirable Soils – soils that meet the above Closure Criteria and consists of caliche, gypsum, limestone or compositions that inhibit vegetation growth

4.0 Characterization Plan

Vertex personnel will advance four exploratory boreholes at the locations shown on Figure 1 to a depth of 4 feet below ground surface, or until analytical results indicate that the vertical extent of impacts meets the closure criteria established in Table 1 in accordance with 19.15.29 NMAC requirements to define the nature and extent of contamination. Soil samples will be collected at two-foot intervals and will satisfy the delineation requirements per 19.15.29 NMAC with more than two discrete samples collected per sample point. Field screening results will be used to guide sample collection and evaluate the vertical extent of potential impacts. Horizontal delineation will be completed if any impact is detected.

Field screening will be conducted using a photoionization detector (PID) for volatile hydrocarbons, a Dextil PetroFlag in accordance with EPA SW-846 Method 9074 for extractable hydrocarbons, and silver nitrate titration for chlorides. Laboratory analyses will be performed in accordance with the following methods:

- Benzene, toluene, ethylbenzene and xylene – Method 8021
- Total Petroleum Hydrocarbons – Method SW-8015B
- Chlorides – Method 300.0

5.0 References

Google Inc. (2026). *Google Earth Pro (Version 7.3.3)* [Software]. Retrieved from <https://earth.google.com>

Griffith, G.E., Omernik, J.M., McGraw, M.M., Jacobi, G.Z., Canavan, C.M., Schrader, T.S., Mercer, D., Hill, R., and Moran, B.C. (2006). *Ecoregions of New Mexico*. Available at: <https://www.epa.gov/eco-research/ecoregion-download-files-state-region-6#pane-29>

Natural Resources Conservation Service. (2012, Reprint 2021). *Field Book for Describing and Sampling Soils Version 3.0*. National Soil Survey Center: Natural Resources Conservation Service. U.S. Department of Agriculture. Pg. 2-89. Retrieved from: <https://www.nrcs.usda.gov/sites/default/files/2022-09/field-book.pdf>

New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

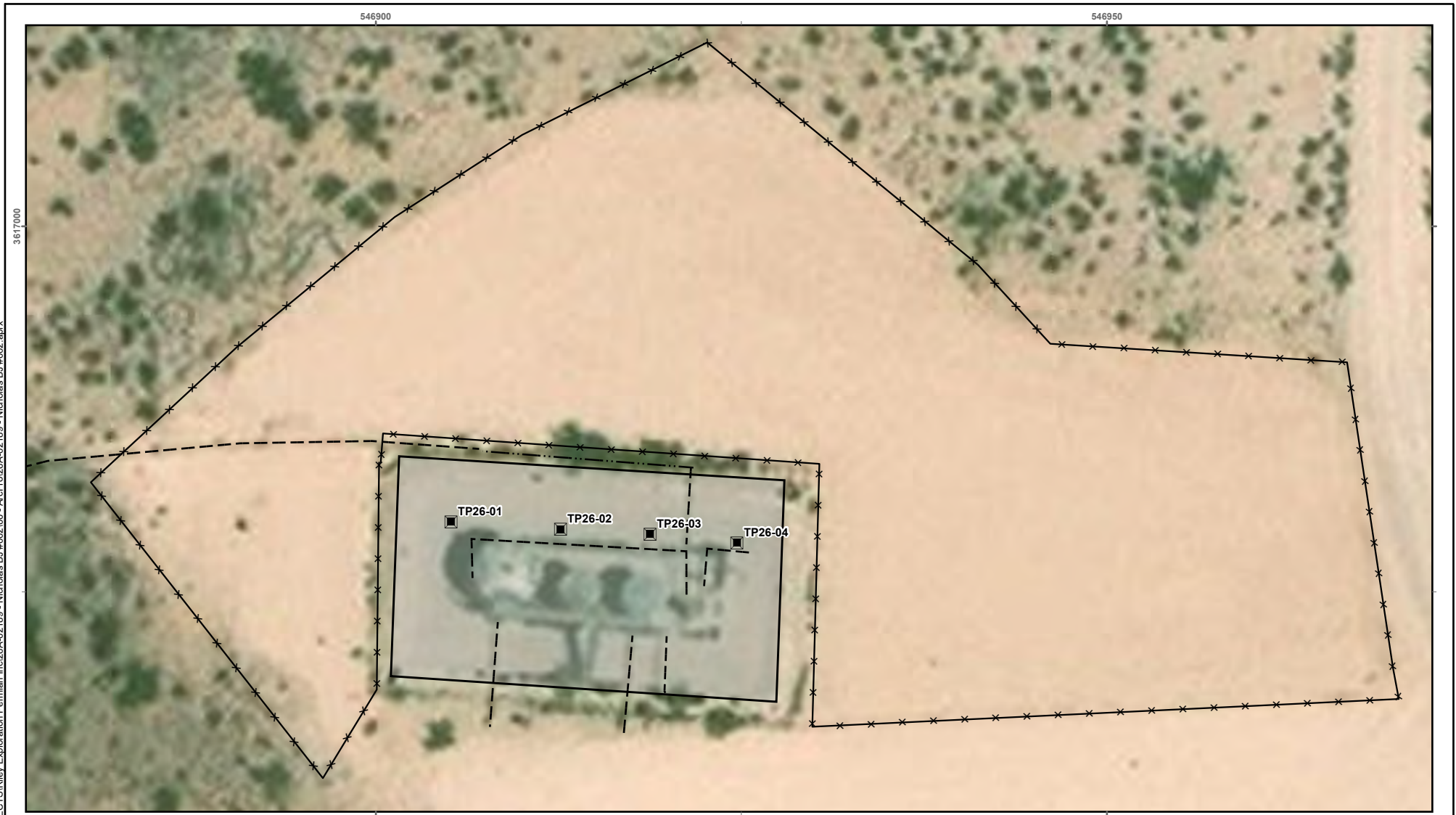
United States Department of Agriculture, Natural Resources Conservation Service. (2026). *Web Soil Survey*. Retrieved from: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

6.0 Limitations

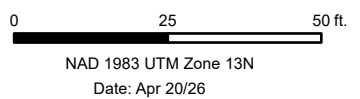
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The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions 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.

FIGURES



- Testpit
- Pipeline (Aboveground)
- Containment Boundary
- Fence
- Pipeline (Underground)



Map Center:
 Lat: 32.689594°N,
 Long: 104.499433°W

**Characterization Schematic
 Nicholas BJ #002**

FIGURE:
1



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, 2025. Site features from GPS by Vertex Professional Services Ltd. (VPS), 2026.

Document Path: S:\04 - Geomatics\1-Projects\1- US PROJECTS\Riley Exploration Permian Inc\26A-02189 - Nicholas BJ #002\00 - ArcPro\26A-02189 - Nicholas BJ #002.aprx

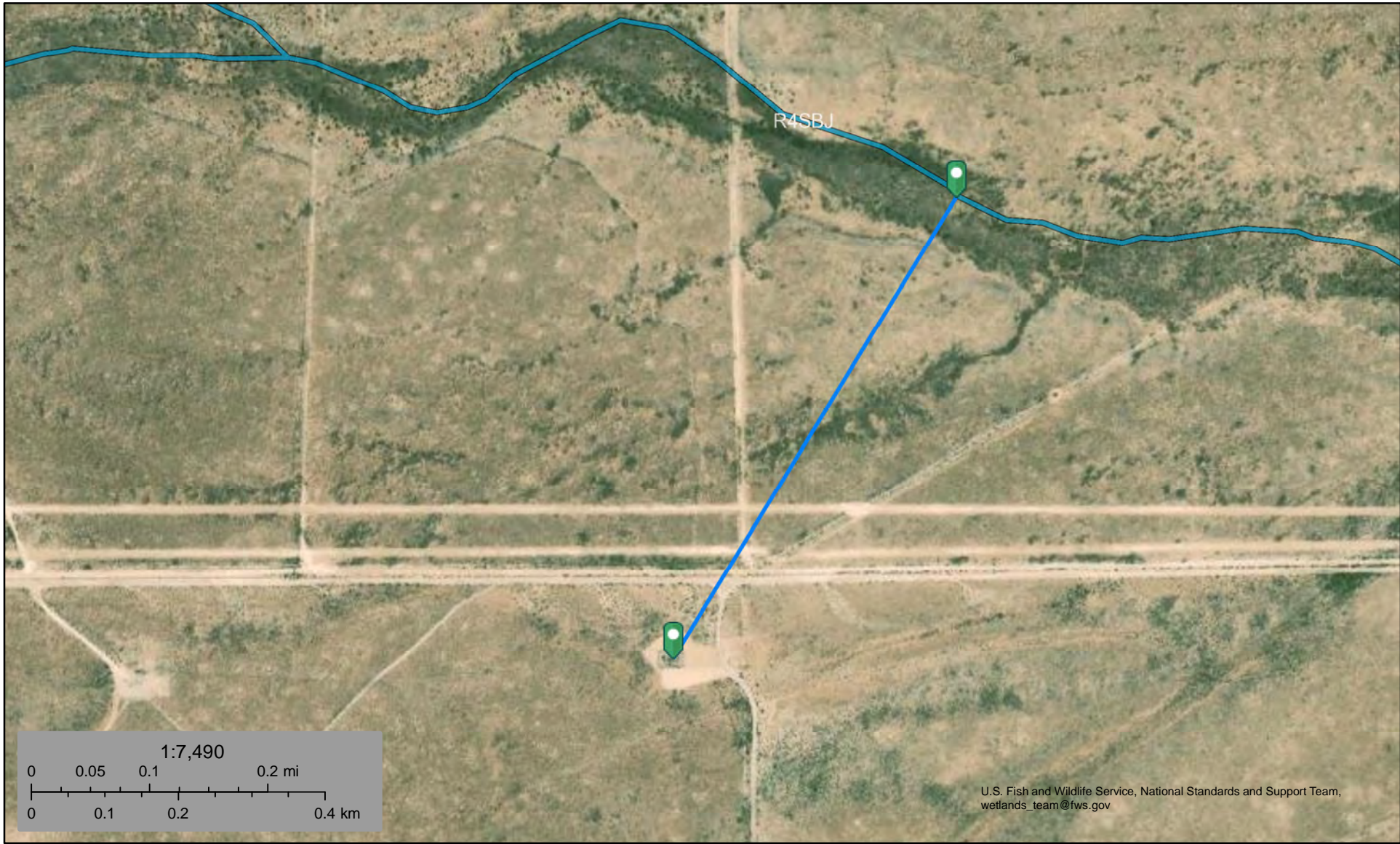
TABLES

Table 2. Closure Criteria Determination			
Site Name: Nicholas BJ #002			
Spill Coordinates: 32.68959,-104.49939		X: 546928.22	Y: 3616986.44
Site Specific Conditions		Value	Unit
1	Depth to Groundwater (nearest reference)	305	feet
	Distance between release and nearest DTGW reference	2,034	feet
		0.39	miles
Date of nearest DTGW reference measurement		April 16, 1967	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	2,041	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	13,256	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	9,868	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	2,037	feet
	ii) Within 1000 feet of any fresh water well or spring	2,037	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	feet
7	Within 300 feet of a wetland	9,148	feet
8	Within the area overlying a subsurface mine	No	feet
	Distance between release and nearest registered mine	161,140	feet
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
	Distance between release and nearest unstable area	0	feet
10	Within a 100-year Floodplain	500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	6,407	feet
11	Soil Type	Upton	
12	Ecological Classification	Shallow	
13	Geology	Qp	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	≤ 50' 51-100' >100'

APPENDIX A – Closure Criteria Research Documentation



Nicholas BJ #002 Watercourse



U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov

April 13, 2026

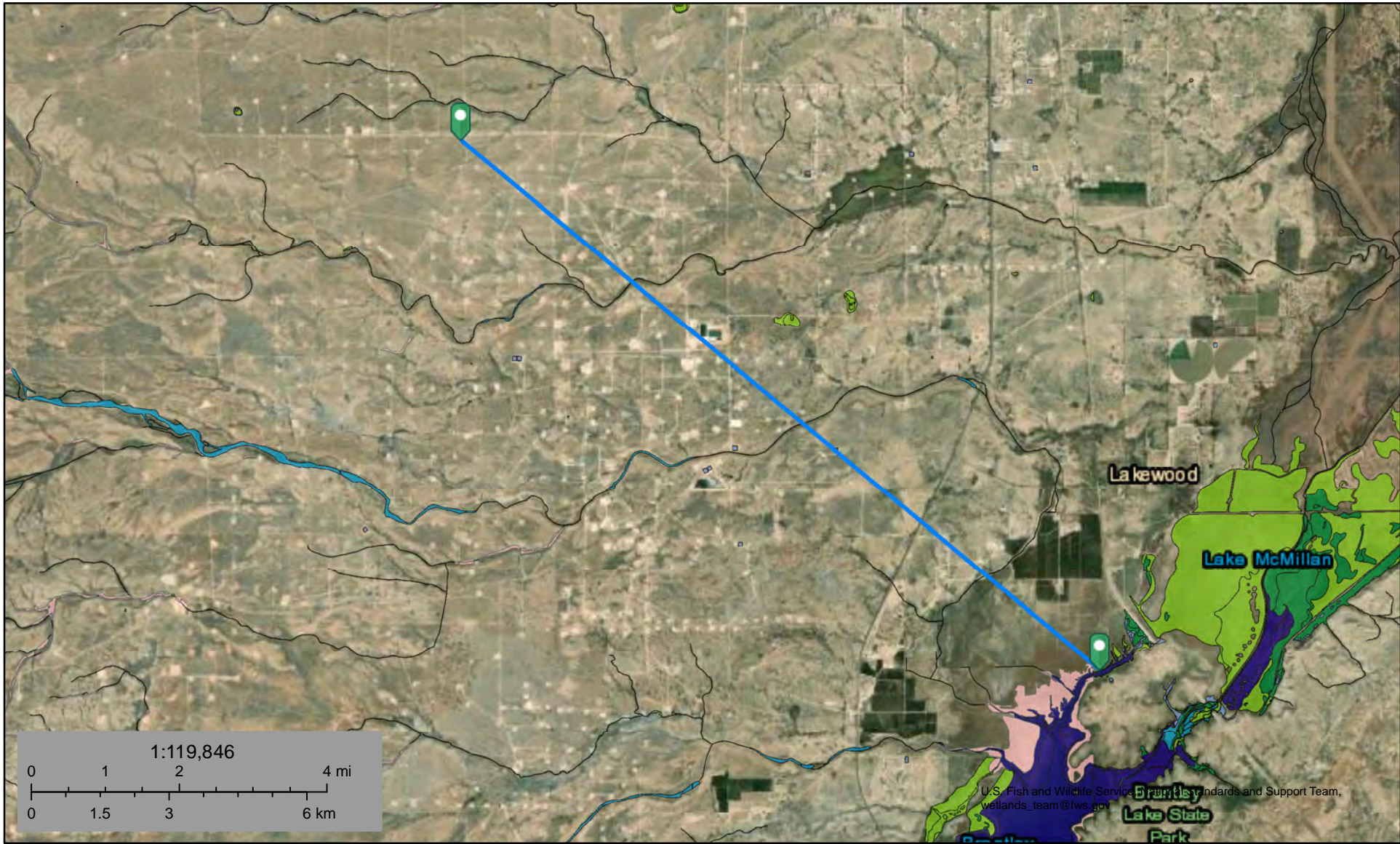
Wetlands

- 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.



Nicholas BJ #002 Lake



April 13, 2026

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.

Nicholas BJ #002

Distance to Nearest Resident: 9,868ft

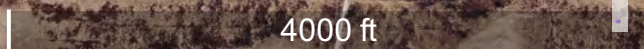
Legend

-  Line Measure
-  Nicholas BJ #002
-  Resident



Nicholas BJ #002

Resident



Active & Inactive Points of Diversion (with Ownership Information)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)					(NAD83 UTM in meters)		Map	Distance	
											q64	q16	q4	Sec	Tws	Range	X			Y
RA 05331	RA	DOL	3.000	JAMES H. HOWELL REVOCABLE TRUST	ED	RA 05331				Shallow	NW	NW	SE	05	19S	25E	546308.0	3616955.0 *		621.0
RA 13183	RA	MON	0.000	EOG RESOURCES, INC.	ED	RA 13183 POD2	NA				SE	SE	NW	05	19S	25E	546179.0	3617084.4		755.6

Record Count: 2

Filters Applied:

UTM Filters (in meters):

Easting: 546928.22

Northing: 3616986.44

Radius: 1610

Sorted By: Distance

* 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.

4/13/26 4:36 PM MST

Active & Inactive Points of Diversion

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Nicholas BJ #002 Wetland



April 13, 2026

Wetlands

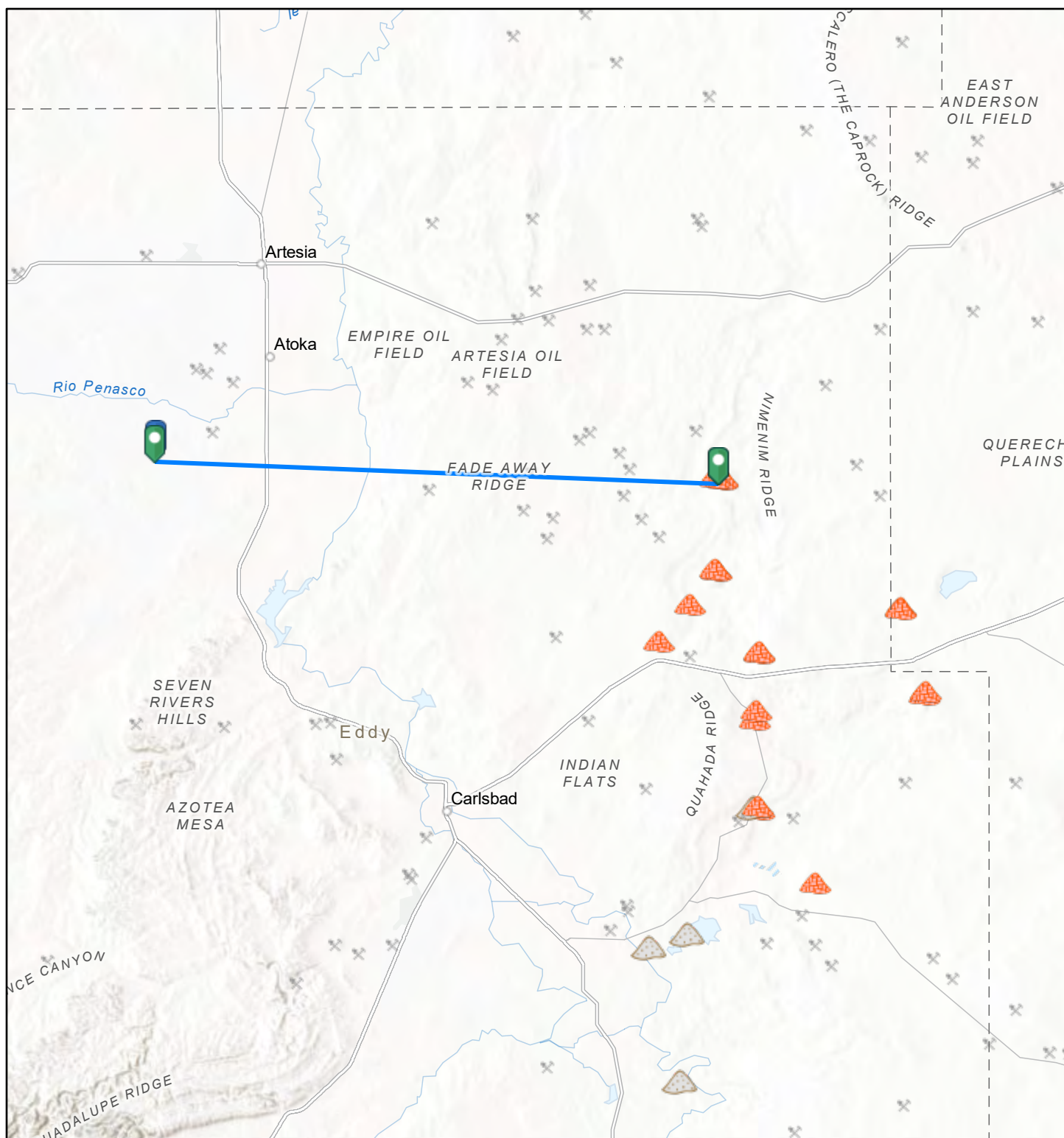
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- 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.

Nicholas BJ #002 Mine



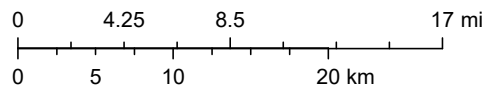
4/13/2026, 4:42:34 PM

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Registered Mines

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




- ✕ Aggregate, Stone etc.
- ▲ Potash
- ▲ Salt



Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, CGIAR, USGS

Nicholas BJ #002
Distance to FEMA Flood Zone A: 6,407ft

Legend *Page 20 of 50*

-  FEMA Flood Zone A
-  Line Measure
-  Nicholas BJ #002



Google Earth

Image © 2026 Airbus



3000 ft

Nicholas BJ #002

National Flood Hazard Layer FIRMette



104°30'17"W 32°41'38"N



Legend

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

- | | | |
|-----------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard Zone D |
| | | Channel, Culvert, or Storm Sewer |
| OTHER FEATURES | | Levee, Dike, or Floodwall |
| | | 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 |
- 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 4/13/2026 at 10:57 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.

Released to Imaging: 5/20/2026 8:37:38 AM

1:6,000

104°29'39"W 32°41'7"N



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



April 13, 2026

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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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

Custom Soil Resource Report

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

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

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

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

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

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

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

Custom Soil Resource Report

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

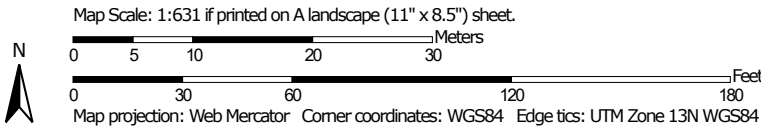
Soil Map

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

Custom Soil Resource Report Soil Map




Soil Map may not be valid at this scale.




Custom Soil Resource Report


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil 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 21, Sep 9, 2025

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

Date(s) aerial images were photographed: Mar 22, 2025—Apr 12, 2025

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

Custom Soil Resource Report

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UR	Upton-Reagan complex, 0 to 9 percent slopes	1.7	100.0%
Totals for Area of Interest		1.7	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.

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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.

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Eddy Area, New Mexico**UR—Upton-Reagan complex, 0 to 9 percent slopes****Map Unit Setting**

National map unit symbol: 1w65
Landscape: Uplands
Elevation: 1,100 to 5,400 feet
Mean annual precipitation: 6 to 15 inches
Mean annual air temperature: 60 to 70 degrees F
Frost-free period: 180 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Upton and similar soils: 55 percent
Reagan and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Upton**Setting**

Landscape: Uplands
Landform: Fans, Ridges
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R070BC025NM - Shallow

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Hydric soil rating: No

Description of Reagan

Setting

Landscape: Uplands
Landform: Alluvial fans, Fan remnants
Landform position (three-dimensional): Rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 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: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R070BC007NM - Loamy
Hydric soil rating: No

Minor Components

Pima

Percent of map unit: 5 percent
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: No

Reagan

Percent of map unit: 5 percent
Ecological site: R070BC007NM - Loamy
Hydric soil rating: No

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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APPENDIX B – Field Reports



Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

04/08/2026

Location: Default Site Location

By: John Rewis

Table with 4 columns: Field Name, Value, Field Name, Value. Includes Weather (Sunny), Staff On-site (John Rewis), Contractor, Contractor Crew, Staff From Time, Equipment On Site (N/A), Tailgate meeting conducted (Yes), Incident ID Number.

Work Summary:

Site Documentation

Time Observations

Table with 2 columns: Time, Observations. Contains 4 entries detailing site walkthrough, containment observations, pasture reclamation, and gas line location.

Pictures/Attachments

Date: 4/8/2026
Time: 10:26
Notes: Pipeline running from the separator into the pasture. Most likely tied into the gas line in question.
Latitude: 32.68073333333333
Longitude: -104.49379722222223
Direction: S



Default Site Location | Lat: 32.68073, Lon: -104.49380 | Azimuth: 154.6 SE , Wed, Apr 8, 2026 10:26



Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
 Time: 10:31
 Notes: Pipeline running from the separator into the pasture. Most likely tied into the gas line in question.
 Latitude: 32.63603055555556
 Longitude: -104.45599444444444
 Direction: N



Date: 4/8/2026
 Time: 10:31
 Notes: West side of the reclaimed pasture that is adjacent to the containment.
 Latitude: 32.640005555555554
 Longitude: -104.46379166666667
 Direction: E





Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
Time: 10:31
Notes: North side of the reclaimed pasture that is adjacent to the containment.
Latitude: 32.623047222222226
Longitude: -104.44789722222222
Direction: W



Date: 4/8/2026
Time: 10:31
Notes: East side of the reclaimed pasture that is adjacent to the containment.
Latitude: 32.623047222222226
Longitude: -104.44789722222222
Direction: S





Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
 Time: 10:54
 Notes: East side of the reclaimed pasture adjacent to the containment.
 Latitude: 32.620736111111114
 Longitude: -104.4456388888889
 Direction: N



Default Site Location | Lat: 32.62074, Lon: -104.44564 | Azimuth: 20.1 N , Wed, Apr 8, 2026 10

Date: 4/8/2026
 Time: 10:25
 Notes: Overview of the south extent of the containment.
 Latitude: 32.629186111111111
 Longitude: -104.45585555555556
 Direction: NE



Default Site Location | Lat: 32.62919, Lon: -104.45586 | Azimuth: 59.0 NE , Wed, Apr 8, 2026 10



Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
Time: 10:25
Notes: Southeastern extent of the containment.
Latitude: 32.68934722222222
Longitude: -104.49940555555555
Direction: E



Date: 4/8/2026
Time: 10:25
Notes: Northeastern extent of the containment.
Latitude: 32.68934722222222
Longitude: -104.49940555555555
Direction: E





Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
Time: 10:25
Notes: Northwestern extent of the containment.
Latitude: 32.68933611111111
Longitude: -104.49939722222223
Direction: E



Date: 4/8/2026
Time: 10:25
Notes: Possible gas line in question.
Latitude: 32.68932777777778
Longitude: -104.49938888888889
Direction: E





Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
 Time: 10:25
 Notes: Possible gas line becomes buried near the northwestern extent of the containment. The pipeline does not surface again.
 Latitude: 32.68931388888888
 Longitude: -104.49938055555556
 Direction: E



Date: 4/8/2026
 Time: 10:25
 Notes: Pipeline inside the containment running from a tank to the separator.
 Latitude: 32.68931944444444
 Longitude: -104.49934444444445
 Direction: E





Daily Field Log
Site: Nicholas BJ #002
Client: Riley Exploration Permian, Inc.

Pictures/Attachments

Date: 4/8/2026
Time: 10:25
Notes: Pipelines running from the separator and tanks within the AOI (northeast portion of containment).
Latitude: 32.68931388888888
Longitude: -104.49933611111111
Direction: E



Sante Fe Main Office
Phone: (505) 476-3441

General Information
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 584405

QUESTIONS

Operator: RILEY PERMIAN OPERATING COMPANY, LLC 29 E Reno Avenue Oklahoma City, OK 73104	OGRID: 372290
	Action Number: 584405
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPM2316026914
Incident Name	NAPM2316026914 NICHOLAS BJ #002 @ 30-015-23447
Incident Type	Other
Incident Status	Initial C-141 Received
Incident Well	[30-015-23447] NICHOLAS BJ #002

Location of Release Source	
<i>Please answer all the questions in this group.</i>	
Site Name	NICHOLAS BJ #002
Date Release Discovered	08/16/2006
Surface Owner	Private

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

Nature and Volume of Release	
<i>Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.</i>	
Crude Oil Released (bbls) Details	Cause: Other Tank (Any) Crude Oil Released: 0 BBL (Unknown Released Amount) Recovered: 0 BBL Lost: 0 BBL.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	Not answered.
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)	This C-141 is for a historical release identified by an OCD inspector on a routine/periodic inspection on 06/21/2005 and stated the following: "Footages are incorrectly listed on well sign. Tank battery for this well is in unit letter I. Several areas of contamination at battery. Below grade tank may be leaking. Gas line is plumbed utilizing a KimRay valve with the pop off line terminating open ended in the battery. Produced fluids contamination at end of line. Battery area is in violation of Rule 13 and Rule 116. Delineation and remediation of contaminants required. Please submit C-141 and remediation workplan along with site ranking information."

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QUESTIONS, Page 2

Action 584405

QUESTIONS (continued)

Operator: RILEY PERMIAN OPERATING COMPANY, LLC 29 E Reno Avenue Oklahoma City, OK 73104	OGRID: 372290
	Action Number: 584405
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
<i>With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.</i>	

Initial Response

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

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

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: Fernando Rodriguez Title: SR EHS Specialist Email: fernandorodriguez@rileypermian.com Date: 05/17/2026
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**State of New Mexico
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Santa Fe, NM 87505**

QUESTIONS, Page 3

Action 584405

QUESTIONS (continued)

Operator: RILEY PERMIAN OPERATING COMPANY, LLC 29 E Reno Avenue Oklahoma City, OK 73104	OGRID: 372290
	Action Number: 584405
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

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 1000 (ft.) and ½ (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 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 1000 (ft.) and ½ (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 1 and 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
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	No
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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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CONDITIONS

Action 584405

CONDITIONS

Operator: RILEY PERMIAN OPERATING COMPANY, LLC 29 E Reno Avenue Oklahoma City, OK 73104	OGRID: 372290
	Action Number: 584405
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Characterization Plan is Conditionally Approved. Any area designated as a "Release Area" will need to have 5-point composite confirmation soil samples conducted within the entire boundary of that area. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards from Table 1 of the OCD Spill Rule for site receptor characterization/proven depth to water determination. Please make sure that the edge of the release extent is accurately defined. Sidewall/edge samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. All off pad areas must meet reclamation standards in the OCD Spill Rule. The work will need to be completed in 90 days after the report has been reviewed.	5/20/2026