District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Dale Woodall	Contact Telephone
Contact email Dale.Woodall@dvn.com	Incident # *(assigned by OCD)*
Contact mailing address 6488 Seven Rivers Hwy Artesia, NM 88210	

Location of Release Source

Latitude 32.311852 Longitude -104.180549

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Skeleton Fee 2 Pad	Site Type Oil
Date Release Discovered 03/17/2022	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
C	15	23S	27E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ■ Private (*Name:* Monty Joe Petska)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 24 BBLS	Volume Recovered (bbls) 24 BBLS
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release Equipment malfunction. All fluid stayed within containment.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

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

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.

Printed Name: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 03/31/2022

email: Kendra.Ruiz@dvn.com Telephone: 575-748-0167

OCD Only

Received by: Jocelyn Harimon Date: 03/31/2022

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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?	96 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☒ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☒ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☒ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☒ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
n/a Field data
n/a Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
n/a Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
n/a Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

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.

Printed Name: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 4-18-22

email: Dale.Woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: _____ Date: _____

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Closure

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 (electronic submittals in .pdf format are preferred) 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.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[N/A] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[X] Description of remediation activities

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.

Printed Name: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 4-18-22

email: Dale.Woodall@dvn.com Telephone: 575-748-1838

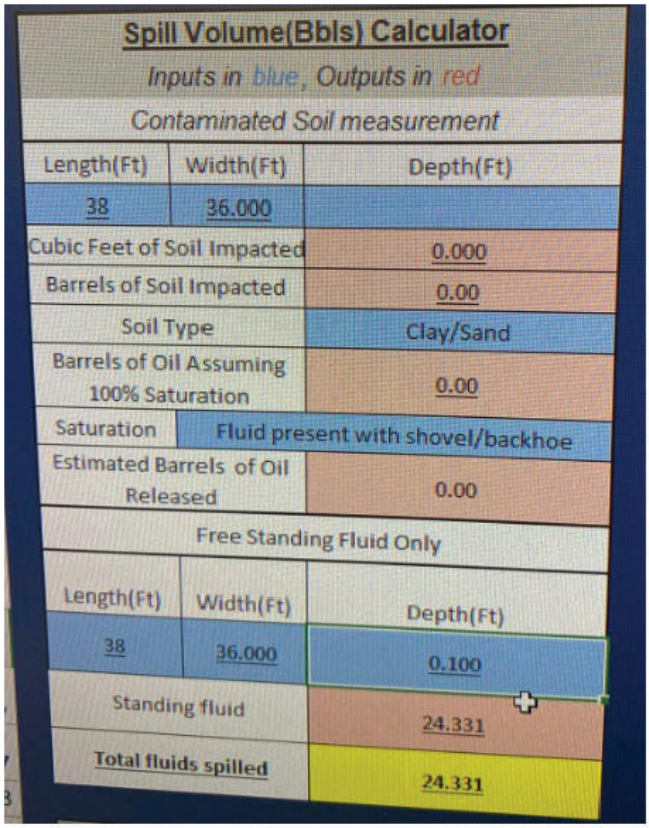
OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____



Spill Volume(Bbls) Calculator

Inputs in blue, Outputs in red

Contaminated Soil measurement

Length(Ft)	Width(Ft)	Depth(Ft)
38	36.000	
Cubic Feet of Soil Impacted		0.000
Barrels of Soil Impacted		0.00
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		0.00
Saturation	Fluid present with shovel/backhoe	
Estimated Barrels of Oil Released		0.00

Free Standing Fluid Only

Length(Ft)	Width(Ft)	Depth(Ft)
38	36.000	0.100
Standing fluid		24.331
Total fluids spilled		24.331

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Closure

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[X] Description of remediation activities

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.

Printed Name: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 4-18-22

email: Dale.Woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: Robert Hamlet Date: 5/13/2022

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Robert Hamlet Date: 5/13/2022

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

April 7, 2022 Vertex Project #: 22E-01035

Spill Closure Report: Skeleton Fee #002
Unit C, Section 15, Township 23 South, Range 27 East
County: Eddy
API: 30-015-42411
Tracking Number: nAPP2207649081

Prepared For: Devon Energy Production Company
6488 Seven Rivers Highway
Artesia, New Mexico 88210

New Mexico Oil Conservation Division – District 2 – Artesia
811 South First Street
Artesia, New Mexico 88210

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and liner inspection for a produced water release that occurred at Skeleton Fee #002 (hereafter referred to as "Skeleton"). Devon provided notification of the spill to New Mexico Oil Conservation Division (NMOCD) District 2 on March 17, 2022, via a Notification of Release. The initial C-141 Release Notification was submitted and processed on March 31, 2022 (Attachment 1). The NMOCD tracking number assigned to this incident is nAPP2207649081.

This letter provides a description of the liner inspection and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) have 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.

Incident Description

On March 16, 2022, a release occurred at Devon's Skeleton site when the treater leaked. The incident resulted in the release of approximately 25 barrels (bbl) of produced water into lined containment. A hydrovac arrived on-site to recover free fluids; approximately 25 bbl of produced water were recovered and removed for disposal off-site. The spill was contained within the lined containment on the facility pad. No produced water was released into undisturbed areas or waterways.

Site Characterization

The release at Skeleton occurred on private land, N 32.3116951, W -104.1806564, approximately 4.5 miles northwest of Loving, New Mexico. The legal description for the site is Unit C, Section 15, Township 23 South, Range 27 East, Eddy County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial map of the site is included in Attachment 2.

Skeleton is typical of oil and gas exploration and production sites in the western portion of the Permian Basin and is currently used for oil and gas production and storage. The following sections specifically describe the area in which the Skeleton facility is located.

The surrounding landscape is associated with flood plains, alluvial fans, and fan remnants typical of elevations of 600 to 5,300 feet above sea level. The climate is semi-arid, with average annual precipitation ranging between 7 and 25 inches. The dominant grass species are black grama, blue grama, tobasa and giant tobasa, with scattered fourwing saltbush, winterfat and mesquite. Litter and bare ground are a significant proportion of ground cover while grasses compose the remainder (United States Department of Agriculture, Natural Resources Conservation Service, 2022). Limited to no vegetation is allowed to grow on the compacted facility pad.

The *Geological Map of New Mexico* indicates the surface geology at Skeleton is comprised of Qa – alluvium (New Mexico Bureau of Geology and Mineral Resources, 2022). The Natural Resources Conservation Service *Web Soil Survey* characterizes the soil at the site as Reagan loam and Pima silt loam, characterized by deep loam and silty clay loam. It tends to be well-drained with low to medium runoff and moderate to high available moisture in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2022). There is medium potential for karst geology to be present near Skeleton, though some erosional karst is possible (United States Department of the Interior, Bureau of Land Management, 2018).

There is a significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, adjacent to the Skeleton pad and 294 feet from the release area. An emergent wetland is located approximately 4.29 miles east and a seasonal lake is located approximately 10.04 miles southeast of the release site (United States Fish and Wildlife Service, 2022).

The nearest active well to Skeleton is an irrigation well identified by the New Mexico Office of the State Engineer 337 feet southwest from the release area (New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2022). The nearest depth to groundwater (DTGW) reference is a United States Geological Survey monitoring well located 0.47 miles to the south, with a 2018 DTGW measurement of 96 feet below ground surface (bgs; United States Department of the Interior, United States Geological Survey, 2022). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Based on data included in the closure criteria determination worksheet, the release at Skeleton is subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC. The release area is within 300 feet of a watercourse and within 1,000 feet of a freshwater well; therefore, the closure criteria for the incident assume most stringent conditions (depth to groundwater <50 feet bgs) and are determined to be associated with the following constituent concentration limits.

Table 1. Closure Criteria for Soils Impacted by a Release		
Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/L TDS[1]	**Constituent**	**Limit**
< 50 feet	Chloride	600 mg/kg
	TPH[2] (GRO + DRO + MRO)	100 mg/kg
	BTEX[3]	50 mg/kg
	Benzene	10 mg/kg

[1]Total Dissolved Solids (TDS)

[2]Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)

[3]Benzene, toluene, ethylbenzene, and xylenes (BTEX)

Liner Inspection

On March 22, 2022, Vertex provided 48-hour notification of the liner inspection to NM OCD District 2 as required by Subparagraph (a) of Paragraph (5) of Subsection A 19.15.29.11 NMAC (Attachment 4). On April 4, 2022, Vertex was on-site to conduct an inspection of the lined containment and verify that the liner was intact and had the ability to contain the release. The Daily Field Report and associated photographs of the liner inspection are included in Attachment 5. The inspection confirmed the liner remained intact and had the ability to contain the release. This is further evidenced by the amount of fluid released (approximately 25 bbl) and recovered (approximately 25 bbl).

Closure Request

Vertex recommends no additional remediation action to address the release at Skeleton. The secondary containment liner was intact and contained the release. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident (nAPP2207649081) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Devon certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the March 16, 2022, release at Skeleton. A complete C-141 form is included in Attachment 6.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 701.495.1722 or lpullman@vertex.ca

April 7, 2022

Lakin Pullman, B.Sc. Date
ENVIRONMENTAL TECHNICIAN, REPORTING

Attachments

Attachment 1. NMOCD C-141 Initial Notification
Attachment 2. Aerial Site Map
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Required 48-hr Notification
Attachment 5. Daily Field Report with Photographs
Attachment 6. Complete C-141 Form

References

New Mexico Bureau of Geology and Mineral Resources. (2022). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu.

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2022). *Water Column/Average Depth to Water Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html.

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. (2022). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of the Interior, Bureau of Land Management. (2018). *CFO Karst Public*. https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html

United States Department of the Interior, United States Geological Survey. (2022). *National Water Information System: Web Interface*. Retrieved from https://nwis.waterdata.usgs.gov/usa/nwis/gwlevels/?site_no=321822104104101.

United States Fish and Wildlife Service. (2022). *National Wetlands Inventory*. Retrieved from https://www.fws.gov/wetlands/data/Mapper.html.

Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company (Devon). This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division or the Bureau of Land Management, 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.

ATTACHMENT 1

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Dale Woodall	Contact Telephone
Contact email Dale.Woodall@dvn.com	Incident # *(assigned by OCD)*
Contact mailing address 6488 Seven Rivers Hwy Artesia, NM 88210	

Location of Release Source

Latitude 32.311852 Longitude -104.180549

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Skeleton Fee 2 Pad	Site Type Oil
Date Release Discovered 03/17/2022	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
C	15	23S	27E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ■ Private (*Name:* Monty Joe Petska)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 24 BBLS	Volume Recovered (bbls) 24 BBLS
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release Equipment malfunction. All fluid stayed within containment.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

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

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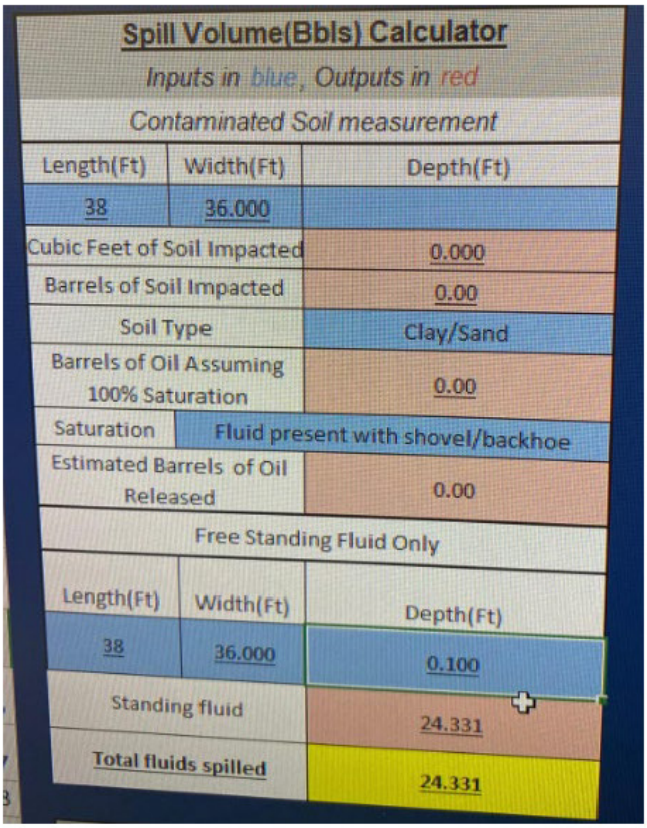
Printed Name: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 03/31/2022

email: Kendra.Ruiz@dvn.com Telephone: 575-748-0167

OCD Only

Received by: Jocelyn Harimon Date: 03/31/2022



Spill Volume(Bbls) Calculator

Inputs in blue, Outputs in red

Contaminated Soil measurement

Length(Ft)	Width(Ft)	Depth(Ft)
38	36.000	
Cubic Feet of Soil Impacted		0.000
Barrels of Soil Impacted		0.00
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		0.00
Saturation	Fluid present with shovel/backhoe	
Estimated Barrels of Oil Released		0.00

Free Standing Fluid Only

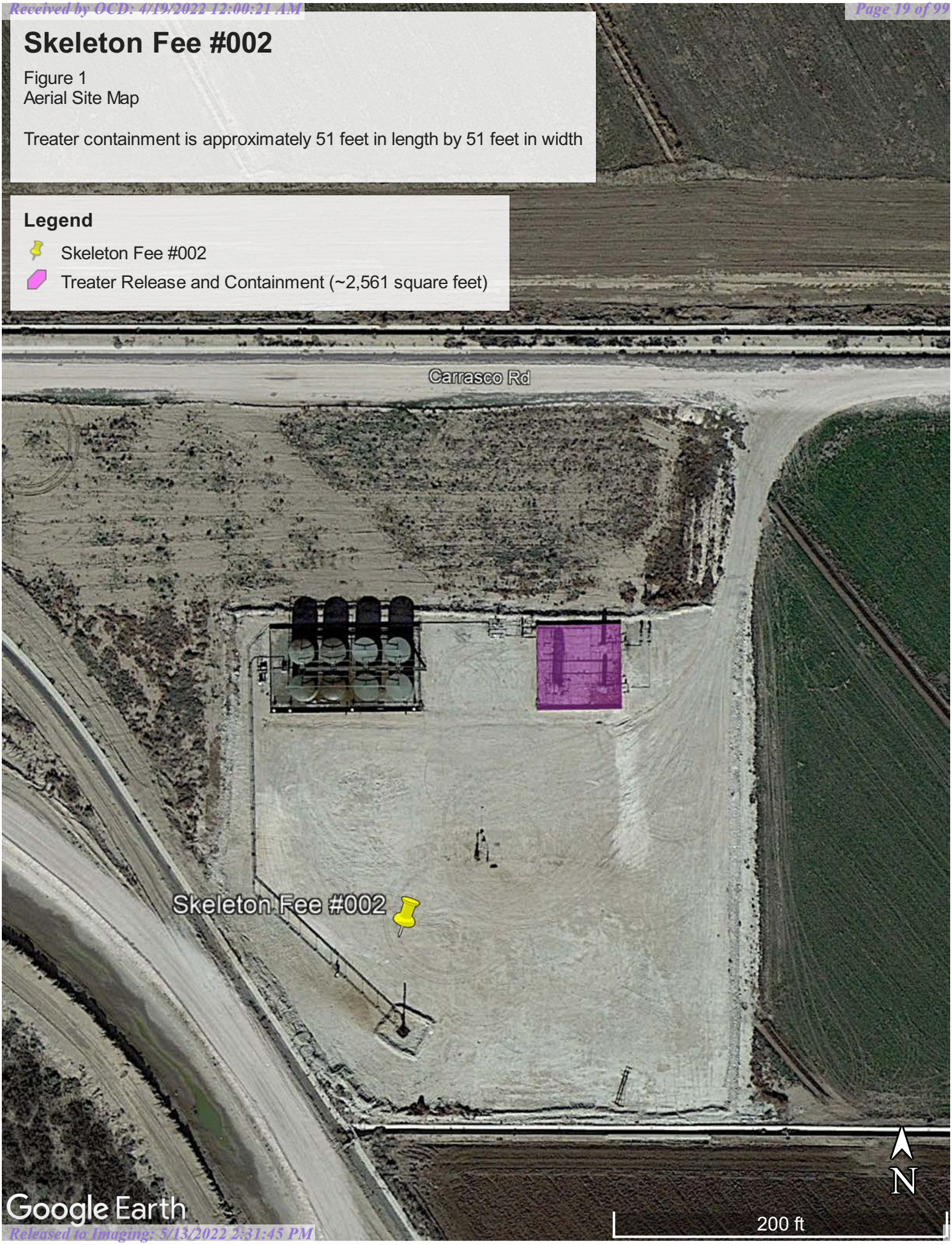
Length(Ft)	Width(Ft)	Depth(Ft)
38	36.000	0.100
Standing fluid		24.331
Total fluids spilled		24.331

ATTACHMENT 2

Skeleton Fee #002

Figure 1
Aerial Site Map

Treater containment is approximately 51 feet in length by 51 feet in width



ATTACHMENT 3

Closure Criteria Worksheet				
Site Name: Skeleton Fee #002				
Spill Coordinates:		X: 32.3116951	Y: -104.1806564	
Site Specific Conditions		Value	Unit	Reference
1	Depth to Groundwater	**96**	feet	1
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	**294**	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	53,050	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	3,304	feet	4
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**	**337**	feet	5
	ii) Within 1000 feet of any fresh water well or spring	**337**	feet	5
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)	6
7	Within 300 feet of a wetland	22,659	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low	9
10	Within a 100-year Floodplain	Area of minimal flood hazard	year	10
11	Soil Type	Loam, silt loam, silty clay loam		11
12	Ecological Classification	Loamy, bottomland		12
13	Geology	Alluvium		13
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<50' 51-100' >100'	

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
	C 00623		2	1	15	23S	27E	577189	3575142*

Driller License: **Driller Company:**

Driller Name: J. R. JOLLEY

Drill Start Date:	**Drill Finish Date:**	**Plug Date:**
Log File Date:	**PCW Rcv Date:**	**Source:**
Pump Type:	**Pipe Discharge Size:**	**Estimated Yield:**
Casing Size: 16.00	**Depth Well:** 200 feet	**Depth Water:**

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

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	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 00623		C	ED		2	1	15	23S	27E	577189	3575142*	150	200		
C 00508 CLW225089	O	CUB	ED	4	1	3	10	23S	27E	576877	3575839*	613	234	28	206
C 00508		CUB	ED	3	1	4	10	23S	27E	577487	3575855*	676	190		
C 00508 S		CUB	ED	2	1	3	10	23S	27E	576877	3576039*	799	234	28	206
C 00187		C	ED	1	1	4	15	23S	27E	577380	3574509	810	210	125	85
C 03060		C	ED	4	4	4	10	23S	27E	578098	3575460	984	139	87	52
C 01083		C	ED		4	2	15	23S	27E	578003	3574751	1021	325	45	280
C 00068 CLW193190	O	CUB	ED	3	3	1	10	23S	27E	576673	3576241*	1063	175		
C 00195		CUB	ED	4	1	4	09	23S	27E	576069	3575827*	1193	128	83	45
C 00068		CUB	ED	1	3	1	10	23S	27E	576673	3576441*	1247	175		
C 00420	C	CUB	ED		4	2	09	23S	27E	576370	3576337*	1301	2151		
C 03766 POD1		C	ED	3	3	1	14	23S	27E	578373	3574609	1413	260	25	235
C 00291		CUB	ED	4	3	3	11	23S	27E	578581	3575407	1457	180	70	110
C 03997 POD1		CUB	ED	2	3	1	14	23S	27E	578534	3574872	1462	230	125	105
C 03767 POD1		C	ED	4	3	1	14	23S	27E	578503	3574702	1490	235	140	95
C 04076 POD1		CUB	ED	2	3	1	14	23S	27E	578554	3574786	1507	245	99	146
C 00291 CLW198354	O	CUB	ED	3	4	3	11	23S	27E	578705	3575472*	1587	180	70	110
C 00607		C	ED	1	1	2	10	23S	27E	577476	3576858*	1615	200		
C 02113		C	ED		4	3	11	23S	27E	578806	3575573*	1701	235	80	155
C 04044 POD1		CUB	ED	3	2	3	09	23S	27E	575504	3575907	1742	290	150	140
C 04126 POD1		CUB	ED	2	4	1	14	23S	27E	578870	3574935	1774	282	135	147
C 02456		C	ED	4	4	3	11	23S	27E	578905	3575472*	1785	140	60	80
C 00766		CUB	ED	3	1	1	11	23S	27E	578282	3576672*	1806	199	22	177
C 00766 CLW195348	O	CUB	ED	3	1	1	11	23S	27E	578282	3576672*	1806	155		
C 03000	R	C	ED	2	3	3	03	23S	27E	576866	3577246*	1983	52	19	33
C 03000 POD2		C	ED	2	3	3	03	23S	27E	576866	3577246	1983	150	80	70
C 00310		CUB	ED	3	3	4	11	23S	27E	579107	3575477*	1987	185	25	160
C 00310 CLW201186	O	CUB	ED	3	3	4	11	23S	27E	579107	3575477*	1987	180	30	150
C 04045 POD1		CUB	ED	3	3	2	14	23S	27E	579013	3574571	2012	240	150	90
C 00295		CUB	ED	3	3	3	02	23S	27E	578276	3577070*	2125	194	54	140
C 00231 AS		CUB	ED	4	1	1	23	23S	27E	578512	3573447*	2296	230	100	130
C 00498		CUB	ED	4	1	1	23	23S	27E	578512	3573447*	2296	210	120	90
C 00498 CLW194833	O	CUB	ED	4	1	1	23	23S	27E	578512	3573447*	2296	165	80	85

C 00549		C	ED	1	3	3	02	23S	27E	578276	3577270*		2296	150	65	85
C 04581 POD1		C	ED	3	1	1	09	23S	27E	575167	3576589		2359	165	109	56
C 00071		CUB	ED	2	1	3	03	23S	27E	576865	3577649*		2383	205		
C 00743		C	ED				03	23S	27E	577370	3577750*		2481	125	60	65
C 03488 POD1		C	ED	4	3	1	23	23S	27E	578430	3573023		2604	217	122	95
C 00230		CUB	ED	1	1	3	02	23S	27E	578275	3577672*		2651	350	80	270
C 00567		CUB	ED	1	1	3	02	23S	27E	578275	3577672*		2651	174	90	84
C 00281		C	ED	4	4	2	04	23S	27E	576459	3577846*		2651	150		
C 00400		C	ED	4	4	2	04	23S	27E	576459	3577846*		2651	145		
C 01203		C	ED		4	1	03	23S	27E	577168	3577958*		2677	100	35	65
C 03072		C	ED	3	4	2	03	23S	27E	577873	3577869*		2693	119	72	47
C 00518		CUB	ED	1	1	3	23	23S	27E	578310	3572840*		2710	178		
C 02999		C	ED	2	1	2	23	23S	27E	579314	3573661*		2719		160	
C 01261		CUB	ED				21	23S	27E	575780	3572889*		2745	250		
C 03557 POD1		C	ED	3	3	3	12	23S	27E	579895	3575503		2774	250		
C 00518 CLW197989	O	CUB	ED	2	1	3	23	23S	27E	578510	3572840*		2803	210		
C 00546		C	ED	1	3	1	03	23S	27E	576663	3578051*		2809		123	
C 00109 CLW203096	O	CUB	ED	1	3	3	04	23S	27E	575051	3577226*		2847	260		
C 03799 POD1		C	ED	1	3	3	04	23S	27E	574981	3577170		2861	200	51	149
C 02995		C	ED	4	3	1	02	23S	27E	578475	3577875*		2922	89	65	24
C 01661		C	ED		3	1	13	23S	27E	580014	3574783*		2926	238	195	43
C 00323		C	ED		4	4	05	23S	27E	574750	3577122*		3008	200		
C 02711		C	ED		4	4	05	23S	27E	574750	3577122*		3008	170	75	95
C 03020		C	ED		4	4	05	23S	27E	574750	3577122*		3008	176	135	41
C 00518 POD2		CUB	ED	2	4	4	22	23S	27E	578105	3572431*		3011	220	98	122
C 01971		C	ED		1	1	03	23S	27E	576762	3578354*		3095	164	145	19
C 01989		C	ED		1	1	03	23S	27E	576762	3578354*		3095	168	88	80
C 02146		C	ED		1	1	03	23S	27E	576762	3578354*		3095	125	125	0
C 02148		C	ED		1	1	03	23S	27E	576762	3578354*		3095	125	70	55
C 02150		C	ED		1	1	03	23S	27E	576762	3578354*		3095	125	70	55
C 02154		C	ED		1	1	03	23S	27E	576762	3578354*		3095	125	70	55
C 02166		C	ED		1	1	03	23S	27E	576762	3578354*		3095	140	75	65
C 02324		C	ED		1	2	03	23S	27E	577571	3578367*		3118	125	75	50
C 00368		CUB	ED	3	3	3	13	23S	27E	579916	3573877*		3119	250	40	210
C 00155		CUB	ED	4	3	1	12	23S	27E	580110	3576218		3124	215	73	142
C 03653 POD1		C	ED	2	4	4	05	23S	27E	574757	3577331		3136	220	180	40
C 03390 POD1		C	ED	1	4	2	23	23S	27E	579511	3573200		3162	200	180	20
C 00368 CLW197578	O	CUB	ED		3	3	13	23S	27E	580017	3573978*		3167	250	40	210
C 00368 S		CUB	ED		3	3	13	23S	27E	580017	3573978*		3167	250	120	130
C 04429 POD1		C	ED	4	4	1	08	23S	27E	574102	3576270		3185	400	350	50
C 03476 POD1		C	ED	2	2	2	04	23S	27E	576488	3578407		3192	200		
C 02977		C	ED	1	1	2	03	23S	27E	577470	3578466*		3203	179	125	54

C 00283		C	ED		2	2	03	23S	27E	577973	3578373*		3205	108	60	48
C 02226		C	ED		2	2	03	23S	27E	577973	3578373*		3205	135	70	65
C 01973		C	ED	1	1	1	03	23S	27E	576661	3578453*		3207	127	90	37
C 00276		CUB	ED	1	1	1	24	23S	27E	579945	3573670		3243	232	70	162
C 02710		C	ED			4	05	23S	27E	574550	3577318*		3287	200	72	128
C 00720		C	ED		1	1	02	23S	27E	578375	3578379*		3339	108	64	44
C 00276 S		CUB	ED		1	1	24	23S	27E	580017	3573576*		3352	248	130	118
C 01172		CUB	ED	3	4	3	34	22S	27E	577064	3578661*		3381	220		
C 01670		C	ED	4	4	2	05	23S	27E	574842	3577826*		3422	385		
C 02897		C	ED	2	1	1	02	23S	27E	578474	3578478*		3468	168	68	100
C 00515		CUB	ED	3	4	4	33	22S	27E	576254	3578650*		3481	180	80	100
C 00515 CLW197977	O	CUB	ED	3	4	4	33	22S	27E	576254	3578650*		3481	180		
C 01700		C	ED		3	3	34	22S	27E	576760	3578756*		3495	205	118	87
C 01801		C	ED		3	3	34	22S	27E	576760	3578756*		3495	220		
C 03290		C	ED	1	3	3	34	22S	27E	576715	3578778		3522	127	72	55
C 04492 POD1		C	ED	2	4	2	05	23S	27E	574903	3578050		3553			
C 00038 S		CUB	ED	1	2	1	02	23S	27E	578679	3578485*		3559	171		
C 00296		C	ED		1	4	05	23S	27E	574345	3577519*		3572	225		
C 03043		C	ED	2	3	3	34	22S	27E	576859	3578855*		3584	118	68	50
C 01071		C	ED			1	08	23S	27E	573751	3576499*		3591	279	95	184
C 02191		C	ED			1	08	23S	27E	573751	3576499*		3591	252	75	177
C 03892 POD1		C	ED	1	2	1	08	23S	27E	573846	3576764		3603	148	54	94
C 02510		C	ED	1	2	1	08	23S	27E	573848	3576806*		3618	350	350	0
C 00034		C	ED	2	2	1	02	23S	27E	578879	3578485*		3651	131		
C 00038		CUB	ED	2	2	1	02	23S	27E	578879	3578485*		3651	200		
C 03274		C	ED	4	4	3	33	22S	27E	575643	3578641*		3674	130	81	49
C 00241		CUB	ED	3	3	2	12	23S	27E	580715	3576307*		3729	160		
C 00332		C	ED	2	2	1	12	23S	27E	580508	3576903*		3747	100	24	76
C 00320		C	ED		4	3	01	23S	27E	580407	3577208*		3802	300		
C 00833		C	ED		4	3	01	23S	27E	580407	3577208*		3802			
C 00287		CUB	ED	3	1	3	34	22S	27E	576657	3579061*		3810			
C 02433		C	ED	4	3	3	33	22S	27E	575238	3578636*		3852	96	64	32
C 00644		CUB	ED	3	2	4	33	22S	27E	576251	3579056*		3876	190		
C 00644 CLW198574	O	CUB	ED	3	2	4	33	22S	27E	576251	3579056*		3876	100		
C 01618		C	ED	4	4	4	07	23S	27E	573252	3575384*		3878	250		
C 02567		C	ED	2	1	2	26	23S	27E	579314	3572049*		3900	187	89	98
C 00496	O	CUB	ED	3	3	4	35	22S	27E	579083	3578694*		3933	225		
C 04480 POD1		C	ED	4	1	4	33	22S	27E	576065	3579083		3949	140	89	51
C 00041		C	ED	1	3	1	01	23S	27E	579897	3578104*		3953	75		
C 00459		CUB	ED	1	3	1	01	23S	27E	579897	3578104		3953	180	42	138
C 00459 CLW197846	O	C	ED	1	3	1	01	23S	27E	579897	3578104*		3953	230	42	188

C 00620		C	ED	4	2	2	02	23S	27E	579689	3578299*	3957	96	60	36
C 04349 POD1		C	ED	4	2	4	34	22S	27E	578110	3579115	3958	200	100	100
C 03457		C	ED	3	4	4	12	23S	27E	581081	3575530	3959	200		
C 01761		C	ED			3	35	22S	27E	578575	3578980*	3971	135	85	50
C 00680		C	ED	3	1	3	35	22S	27E	578272	3579085*	3972	150	46	104
C 03661 POD1		CUB	ED	3	3	4	01	23S	27E	580668	3577103	3980	170	60	110
C 00030		CUB	ED	1	2	3	34	22S	27E	577062	3579267*	3987	205	50	155
C 00030 CLW193032	O	CUB	ED	1	2	3	34	22S	27E	577062	3579267*	3987	205		
C 03053		C	ED	3	4	4	12	23S	27E	581122	3575505*	3998	94	14	80
C 03888 POD4		CUB	ED	3	4	4	12	23S	27E	581139	3575462	4013	35		
C 03941 POD1		CUB	ED	3	4	2	13	23S	27E	581110	3574757	4015	37	19	18
C 02412		C	ED	2	3	3	33	22S	27E	575238	3578836*	4027	251	65	186
C 03941 POD2		CUB	ED	3	4	2	13	23S	27E	581152	3574745	4058	32		
C 00171		CUB	ED	1	2	4	34	22S	27E	577870	3579279*	4066	198	21	177
C 00171 CLW193980	O	CUB	ED	1	2	4	34	22S	27E	577870	3579279*	4066	265		
C 03005		C	ED	3	4	4	07	23S	27E	573052	3575384*	4078	140	100	40
C 00356		C	ED				34	22S	27E	577363	3579359*	4085	155	45	110
C 03741 POD1		C	ED	3	1	2	12	23S	27E	580853	3576976	4091	160	51	109
C 00041 CLW181930	O	C	ED	2	3	1	01	23S	27E	580097	3578104*	4096	75		
C 01632		C	ED	3	2	4	07	23S	27E	573050	3575789*	4111	162	100	62
C 01632 CLW197648	O	C	ED	3	2	4	07	23S	27E	573050	3575789*	4111	162	100	62
C 01632 POD2		C	ED	3	2	4	07	23S	27E	573050	3575789*	4111	173	100	73
C 03738 POD1		C	ED	1	1	3	34	22S	27E	576785	3579382	4116	137	68	69
C 02696		C	ED	1	3	3	33	22S	27E	575038	3578836*	4125	124	71	53
C 04447 POD1		C	ED	2	1	2	05	23S	27E	574500	3578460	4125	200		
C 01976		C	ED	3	1	2	05	23S	27E	574236	3578224*	4127	250		
C 03819 POD5		CUB	ED	4	4	4	12	23S	27E	581256	3575451	4130	36		
C 03819 POD3		CUB	ED	4	4	4	12	23S	27E	581256	3575500	4132	35		
C 03819 POD1		CUB	ED	4	4	4	12	23S	27E	581270	3575463	4143	36		
C 03819 POD2		CUB	ED	4	4	4	12	23S	27E	581270	3575463	4143	34		
C 03888 POD5		CUB	ED	4	4	4	12	23S	27E	581295	3575494	4171	35		
C 03888 POD1		CUB	ED	4	4	4	12	23S	27E	581295	3575525	4172	35		
C 02970		C	ED	3	4	4	32	22S	27E	574635	3578630*	4176	138	71	67
C 03819 POD4		CUB	ED	4	4	4	12	23S	27E	581306	3575464	4180	35		
C 04572 POD1		C	ED	4	2	2	26	23S	27E	579665	3571950	4185	128	60	68
C 03013		C	ED	4	1	3	33	22S	27E	575237	3579043*	4211	118	63	55
C 04603 POD1		C	ED	1	1	3	35	22S	27E	578340	3579320	4217	200		
C 03888 POD3		CUB	ED	4	4	4	12	23S	27E	581348	3575495	4223	35		
C 00192		CUB	ED	1	1	1	01	23S	27E	579895	3578507*	4249	117	60	57
C 00286	C	CUB	ED	4	4	4	35	22S	27E	579688	3578702*	4272	150		
C 00496 POD2		CUB	ED	4	4	4	35	22S	27E	579688	3578702*	4272	172	30	142

C_00496 POD3		CUB	ED	4	4	4	35	22S	27E	579688	3578702*	4272	152	21	131
C_03888 POD2		CUB	ED	4	4	4	12	23S	27E	581400	3575557	4278	30		
C_02230		C	ED				33	22S	27E	575742	3579340*	4290	260	90	170
C_02449		C	ED				33	22S	27E	575742	3579340*	4290	300	70	230
C_00178		CUB	ED	1	2	3	35	22S	27E	578677	3579293*	4300	119		
C_00586		CUB	ED	1	2	3	35	22S	27E	578677	3579293*	4300	254		
C_03073		C	ED	4	4	2	34	22S	27E	578068	3579486*	4309	150	122	28
C_00215		CUB	ED	4	3	2	33	22S	27E	576044	3579458*	4316	180	150	30
C_02326		C	ED			2	07	23S	27E	572948	3576491*	4353	140	99	41
C_02392		C	ED		4	2	33	22S	27E	576350	3579564*	4353	150	48	102
C_01523		C	ED	3	3	1	35	22S	27E	578272	3579492*	4363	118	60	58
C_00191		CUB	ED	3	3	2	33	22S	27E	575844	3579458*	4370	200		
C_04522 POD1		CUB	ED	3	4	1	35	22S	27E	578616	3579396	4376	200	52	148
C_03504 POD1		C	ED	2	3	4	32	22S	27E	574508	3578789	4380	105	90	15
C_00192 CLW193749	O	CUB	ED	2	1	1	01	23S	27E	580095	3578507*	4382	117	60	57
C_00030 CLW193040	O	CUB	ED	1	3	2	34	22S	27E	577465	3579680*	4412	220	69	151
C_00030 CLW193055	O	CUB	ED	1	3	2	34	22S	27E	577465	3579680*	4412	205		
C_00030 S		CUB	ED	1	3	2	34	22S	27E	577465	3579680*	4412	200	69	131
C_02377		C	ED			2	29	23S	27E	574575	3571666*	4426	232	170	62
C_03753 POD1		C	ED	3	3	1	18	23S	28E	581515	3574658	4429	210	60	150
C_04332 POD1		C	ED	2	3	4	32	22S	27E	574436	3578805	4435	98	87	11
C_00144 POD2		CUB	ED	3	3	2	01	23S	27E	580710	3577923*	4450	200	60	140
C_04400 POD1		C	ED	3	1	3	18	23S	28E	581496	3574309	4473	200	120	80
C_01671		C	ED	3	3	1	05	23S	27E	573434	3577811*	4479	350		
C_03066		C	ED	1	1	3	33	22S	27E	575037	3579243*	4481	240		
C_01312		CUB	ED		3	1	35	22S	27E	578373	3579593*	4488	203	65	138
C_04366 POD1		C	ED	3	1	3	07	23S	28E	581569	3575977	4493	94	85	9
C_04187 POD1		C	ED	3	3	1	07	23S	28E	581519	3576251	4495	88	48	40
C_00093		CUB	ED	3	2	4	35	22S	27E	579487	3579109*	4496	210	140	70
C_00093 CLW226379	O	CUB	ED	3	2	4	35	22S	27E	579487	3579109*	4496	200		
C_00093 POD3		CUB	ED	3	2	4	35	22S	27E	579487	3579109*	4496	174	60	114
C_04315 POD1		C	ED	1	3	1	18	23S	28E	581620	3574847	4510			
C_02453		C	ED	4	4	2	29	23S	27E	574876	3571372*	4511	210	175	35
C_03301		C	ED	3	3	4	07	23S	27E	572597	3575268	4532	375		
C_04313 POD1		C	ED	4	3	3	07	23S	28E	581677	3575500	4552	99	86	13
C_03082		C	ED	1	3	3	18	23S	28E	581529	3574096*	4556	220	217	3
C_04452 POD1		C	ED	4	3	1	33	22S	27E	575199	3579419	4567	200		
C_00063		CUB	ED	1	3	1	07	23S	28E	581526	3576521*	4568	130		
C_00171 CLW223473	O	CUB	ED	1	3	2	01	23S	27E	580710	3578123*	4571			
C_00171 POD2		CUB	ED	1	3	2	01	23S	27E	580710	3578123*	4571	200		
C_03074		C	ED	4	3	1	33	22S	27E	575235	3579449*	4578	115	85	30

C 02697		C	ED		1	3	18	23S	28E	581629	3574401*		4584	220	42	178
C 00093 S		CUB	ED	1	3	3	36	22S	27E	579831	3578986		4585	192	57	135
C 04401 POD1		C	ED	2	3	1	18	23S	28E	581696	3574825		4589	200	120	80
C 03553 POD1		C	ED	4	2	2	33	22S	27E	576554	3579841		4597	200	75	125
C 01195		C	ED			2	19	23S	27E	572958	3573260*		4635	180	100	80
C 00210		CUB	ED	3	3	2	35	22S	27E	579082	3579508*		4656	211		
C 00210 CLW193708	O	CUB	ED	3	3	2	35	22S	27E	579082	3579508*		4656	211		
C 04307 POD1		C	ED	2	1	3	07	23S	28E	581737	3576138		4687	92	78	14
C 02004		C	ED		3	4	24	23S	27E	580825	3572378*		4698	232	190	42
C 00880		C	ED	4	2	2	34	22S	27E	578066	3579893*		4706	190		
C 03779 POD1		C	ED	2	3	3	18	23S	28E	581707	3574103		4726	110	70	40
C 04250 POD1		C	ED	1	1	1	07	23S	28E	581613	3576868		4756	140	120	20
C 01781		C	ED		2	4	19	23S	27E	573161	3572659*		4756			
C 01781 POD2		C	ED		2	4	19	23S	27E	573161	3572659*		4756	210		
C 01781 POD3		C	ED		2	4	19	23S	27E	573161	3572659*		4756	210		
C 00058 S		CUB	ED	3	3	3	06	23S	28E	581526	3577131*		4770	202		
C 00229		CUB	ED	1	1	1	34	22S	27E	576650	3580074		4817	200		
C 00653		C	ED	1	1	2	34	22S	27E	577462	3580087*		4818	120	80	40
C 02846		CUB	ED	4	1	1	07	23S	28E	581726	3576726*		4818	150	50	100
C 02180		C	ED			3	18	23S	28E	581831	3574198*		4824	140	80	60
C 04518 POD1		CUB	ED	1	1	1	34	22S	27E	576629	3580078		4824	200	70	130
C 04453 POD1		C	ED	3	2	1	07	23S	27E	572475	3576566		4829	250	70	180
C 03922 POD1		C	ED	3	2	3	18	23S	28E	581844	3574230		4830	138	75	63
C 00193		CUB	ED	1	3	1	33	22S	27E	575035	3579649*		4844	190		
C 02883		CUB	ED	1	3	3	06	23S	28E	581526	3577331*		4851	202		
C 04367 POD1		C	ED	1	2	3	07	23S	28E	581935	3575983		4856	89	72	17
C 04390 POD1		C	ED	1	1	1	34	22S	27E	576741	3580142		4878	118	76	42
C 02262		C	ED		4	2	32	22S	27E	574732	3579544*		4891	128	60	68
C 00455		C	ED	2	2	2	34	22S	27E	578066	3580093*		4902	133		
C 00981		C	ED	2	2	2	34	22S	27E	578066	3580093*		4902	250	41	209
C 02458		CUB	ED	2	2	2	34	22S	27E	578066	3580093*		4902			
C 02845		CUB	ED	3	4	1	07	23S	28E	581920	3576327*		4903	220		
C 04066 POD1		C	ED	2	4	1	18	23S	28E	582038	3574823		4929	155	80	75
C 04389 POD1		C	ED	4	2	3	07	23S	28E	582038	3575885		4945	99	70	29
C 00212 CLW193845	O	CUB	ED	1	1	1	35	22S	27E	578271	3580099*		4951			
C 00531		CUB	ED	1	1	1	35	22S	27E	578271	3580099*		4951	150	87	63
C 00343		CUB	ED	4	3	2	32	22S	27E	574427	3579437*		4957	200		
C 02124		C	ED		3	3	32	22S	27E	573527	3578714*		4976	195	60	135
C 01749		C	ED			3	32	22S	27E	573728	3578915*		4978	156	126	30
C 01833		C	ED			3	32	22S	27E	573728	3578915*		4978	180	155	25
C 03821 POD1		C	ED	2	2	3	32	22S	27E	573988	3579146		4981	200	120	80

C 00921	C	ED	2	1	2	01	23S	27E	580909	3578526*	4981	150	31	119
C 02300	CUB	ED			3	07	23S	27E	572160	3575676*	4985	402		

Average Depth to Water: **85 feet**

Minimum Depth: **14 feet**

Maximum Depth: **350 feet**

Record Count: 241

UTMNAD83 Radius Search (in meters):

Easting (X): 577129.6 **Northing (Y):** 3575280.38 **Radius:** 5000

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

3/22/22 8:31 AM WATER COLUMN/ AVERAGE DEPTH TO WATER


Skeleton Fee #2
0.5 Mile Radius
Legend
32.3116951 -104.1806564
ATC Shooting Sports
Feature 1
South Country Greenhouse
321941104113301
321939104113302
321939104113301
ATC Shooting Sports
321915104105001
321902104103501
32.3116951 -104.1806564
321837104093601
3218221041104101
709
709
706
728
Google Earth
1 km
N

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs

site_no list =

- 321822104104101

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

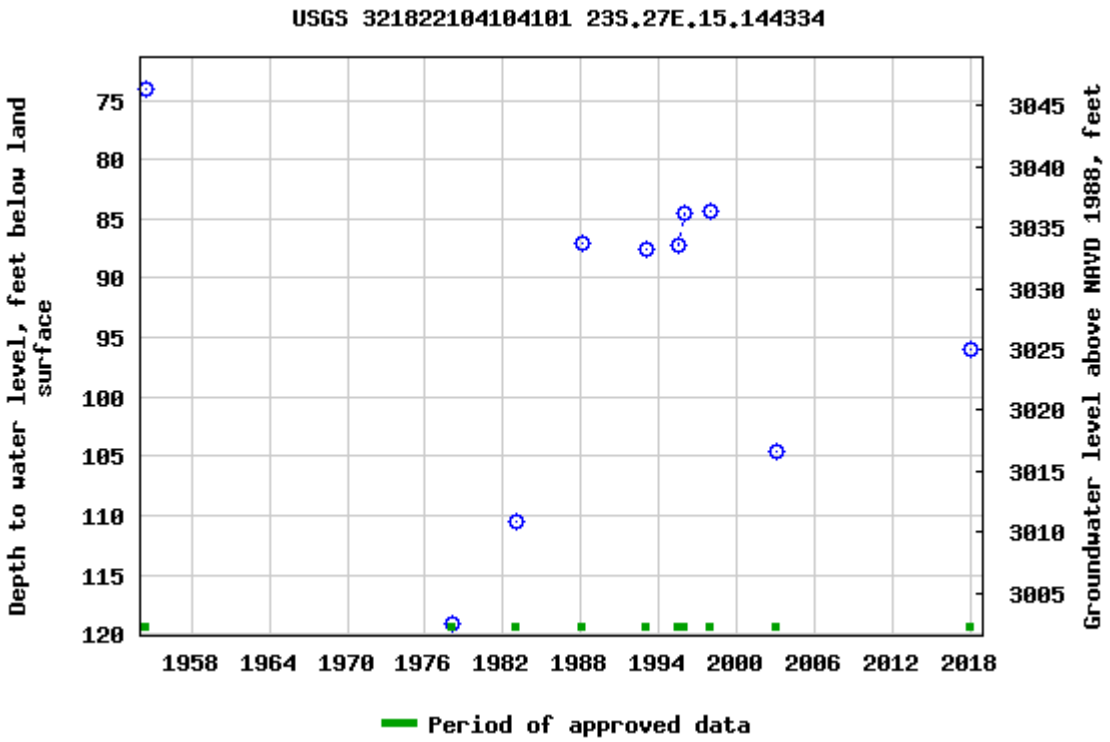
USGS 321822104104101 23S.27E.15.144334

Available data for this site | Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°18'19.0", Longitude 104°10'47.3" NAD83
Land-surface elevation 3,121 feet above NAVD88
This well is completed in the Other aquifers (N9999OTHER) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

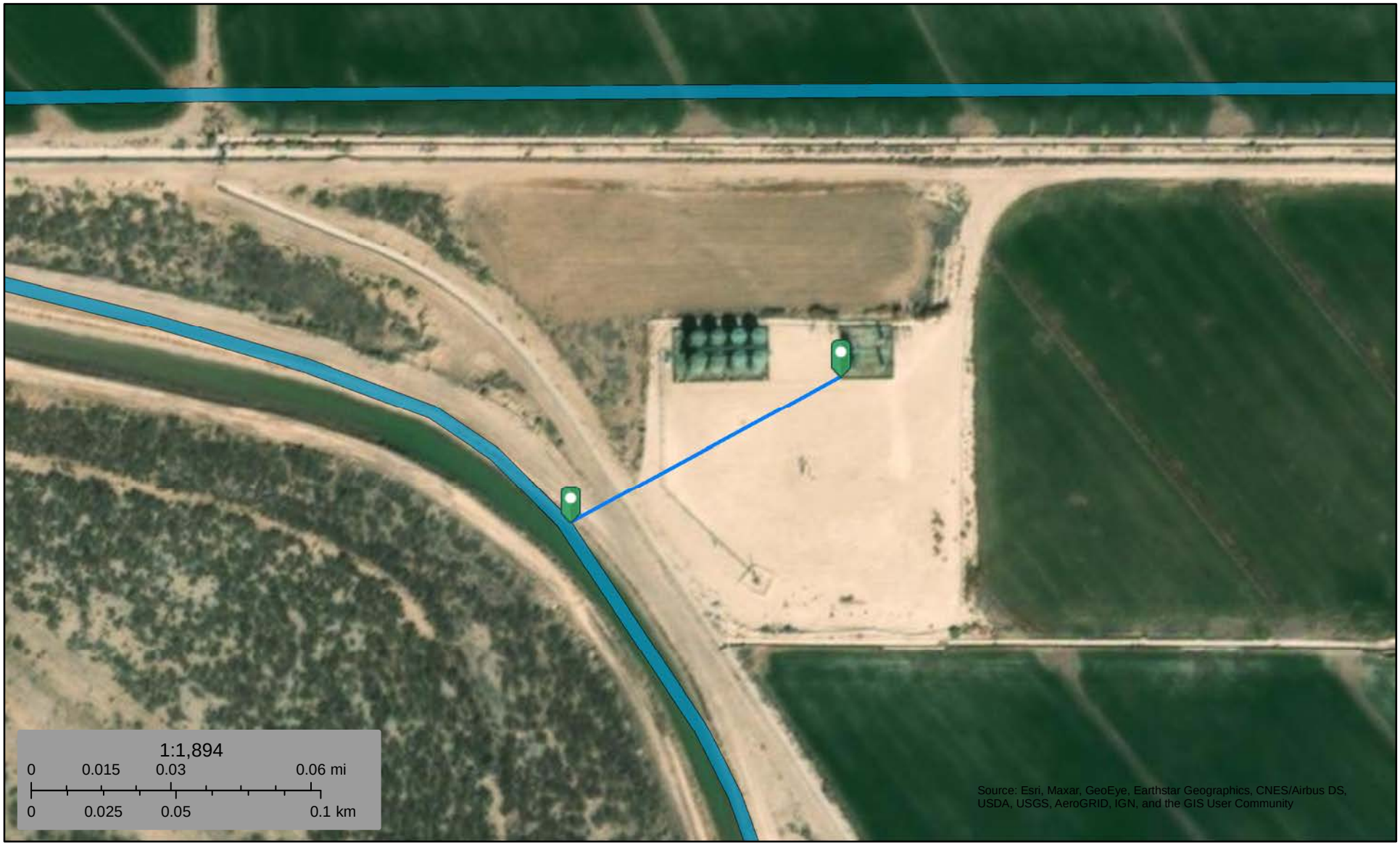
Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2022-03-22 11:06:57 EDT
0.65 0.59 nadww01

U.S. Fish and Wildlife Service

National Wetlands Inventory

Nearest Flowing Watercourse 294 Feet



March 22, 2022

Wetlands

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

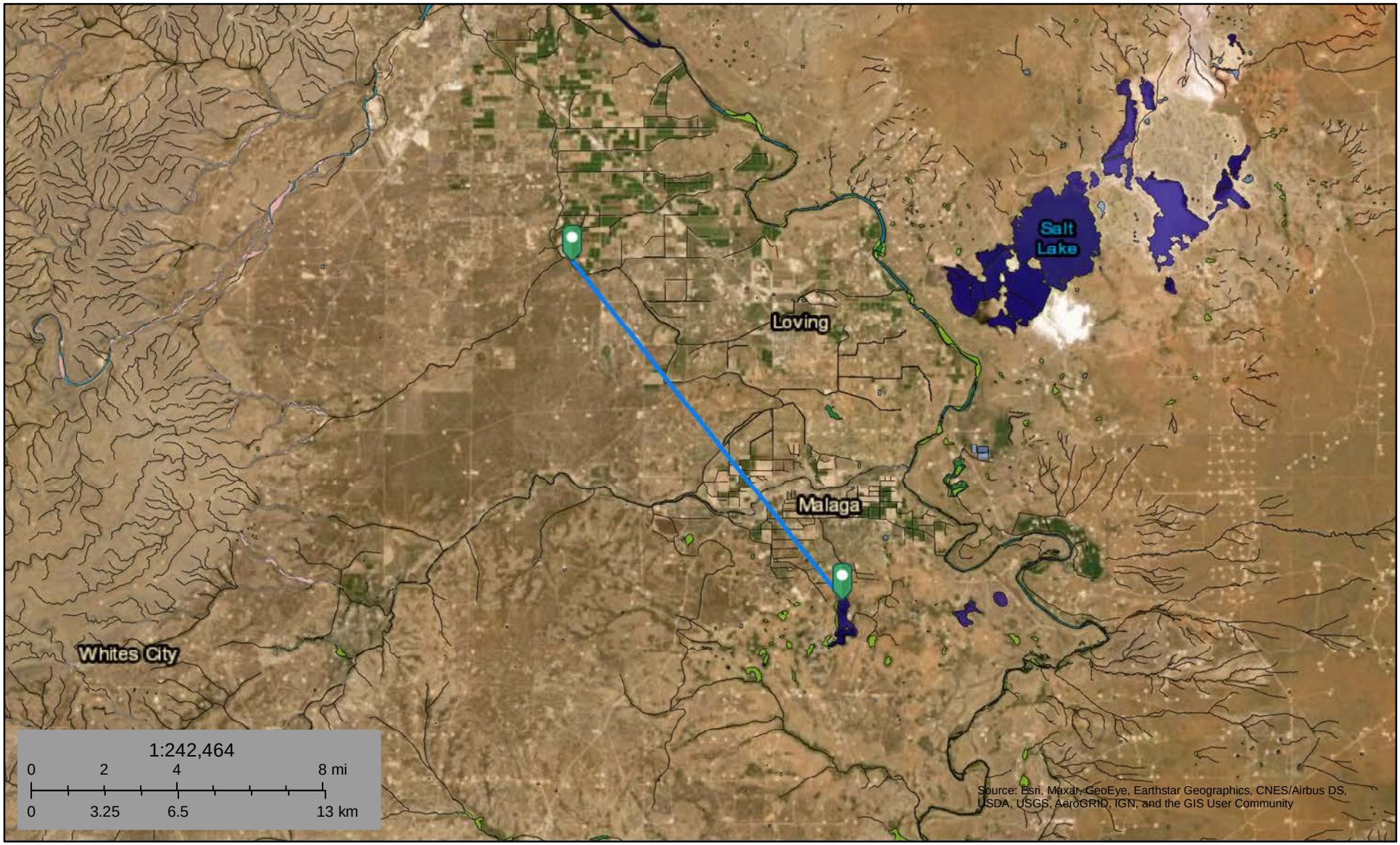
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

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

U.S. Fish and Wildlife Service

National Wetlands Inventory

Nearest Lakebed 53,050 Feet



March 22, 2022

Wetlands

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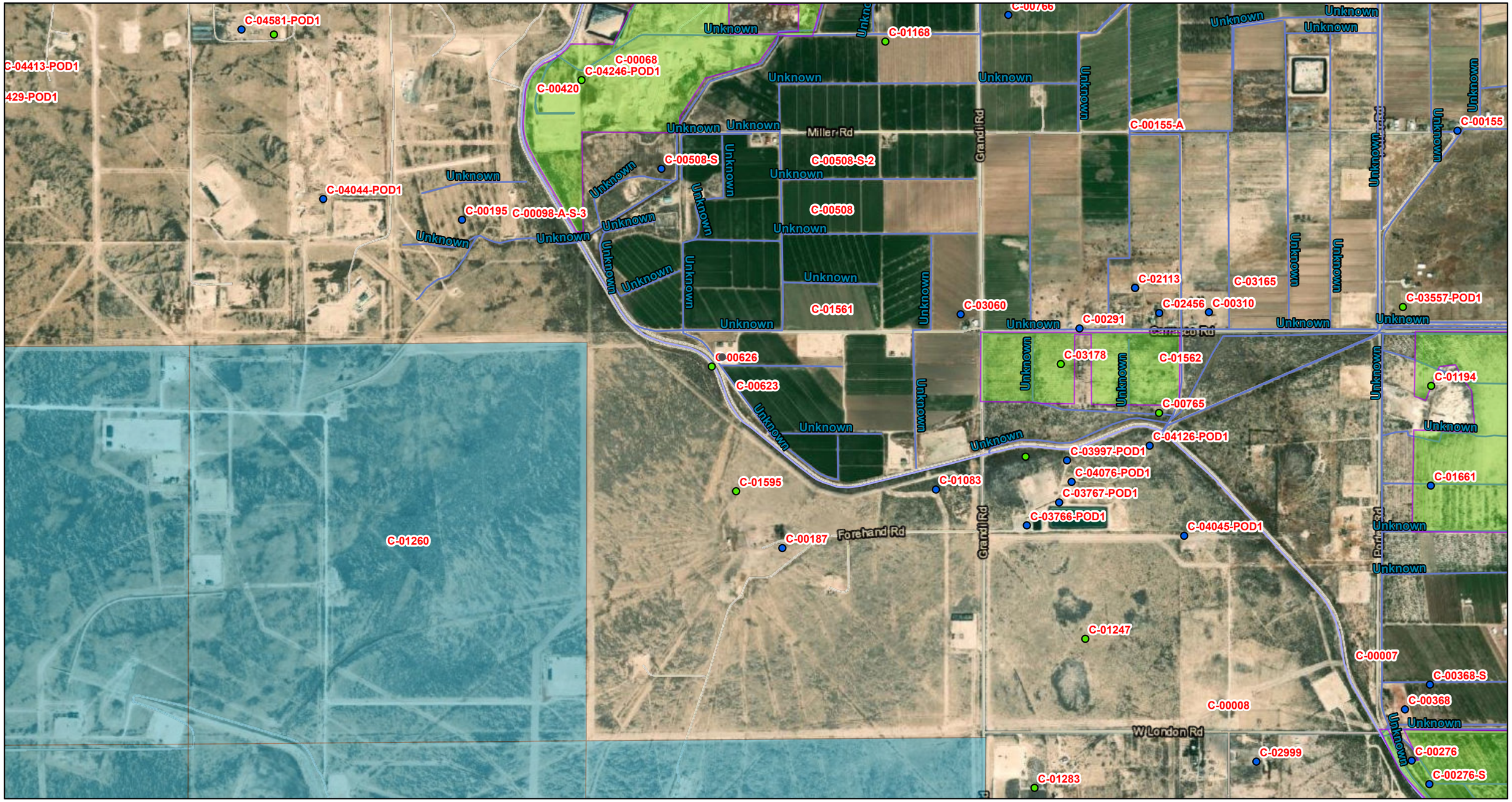
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Skeleton Fee #2

Nearest Residence 3,304 Feet

OSE POD Locations Map



3/29/2022, 3:21:59 PM

GIS WATERS PODs
- Active
- Pending

OSE District Boundary

Water Right Regulations
- Negative Easement Area

New Mexico State Trust Lands
- Both Estates

Conveyances
- Canal
- Ditch
- SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, U.S. Department of Energy Office of Legacy

Unofficial Online Map
These maps are distributed “as is” without warranty of any kind.

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 00626 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: IRR IRRIGATION

Primary Status: CAN CANCELLED

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

Total Diversion: 0 **Cause/Case:** -

Owner: JOE PAUL PETSKA

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	463967	APPRO	1955-02-28	CAN	FIN	C 00626	T	90	270	

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
C 00626			1	2	1	15	23S	27E	577088	3575241*	

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

Priority Summary

Priority	Status	Acres	Diversion	Pod Number
01/06/1955	PMT	90	270	C 00626

Place of Use

Q 256	Q 64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
	1	2	15	23S	27E		40	120		IRR	01/06/1955	CAN	
	2	1	15	23S	27E		14	42		IRR	01/06/1955	CAN	
	2	2	15	23S	27E		36	108		IRR	01/06/1955	CAN	

3/22/22 9:36 AM WATER RIGHT SUMMARY

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in met

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 64	q 16	q 4	Sec	Twn	Rng	X	Y
C 00626	CUB	IRR	0	JOE PAUL PETSKA	ED	C 00626					1	2	1	15	23S	27E	577088	3575241*
C 00623	C		0	JOE PAUL PETSKA	ED	C 00623						2	1	15	23S	27E	577189	3575142*
C 01561	CUB	IRR	0	VASQUEZ MAX M	ED	C 01561					3	3	4	10	23S	27E	577492	3575452*
C 01595	C	PRO	0	OGDEN FARMS & CATTLE COMPANY	ED	C 01595						4	1	15	23S	27E	577191	3574738*
C 00508	CUB	IRR	660.75	CURTIS KELLY SKEEN ESTATE	ED	C 00508				Shallow	3	1	4	10	23S	27E	577487	3575855*
C 01259	CUB	EXP	0	OTIS WATERUSERS COOP.	ED	C 01259								15	23S	27E	577393	3574528*
C 00508	CUB	IRR	660.75	CURTIS KELLY SKEEN ESTATE	ED	C 00508 S				Shallow	2	1	3	10	23S	27E	576877	3576039*
C 00187	C	DOL	3	OGDEN FARMS AND CATTLE CO	ED	C 00187				Shallow	1	1	4	15	23S	27E	577380	3574509
C 00508	CUB	IRR	660.75	CURTIS KELLY SKEEN ESTATE	ED	C 00508 S-2				Shallow	1	1	4	10	23S	27E	577487	3576055*
C 03060	C	DOL	3	MAX VASQUEZ	ED	C 03060				Shallow	4	4	4	10	23S	27E	578098	3575460
C 03806	C	PRO	0	MACK ENERGY CORP	ED	C 03060				Shallow	4	4	4	10	23S	27E	578098	3575460
C 03807	C	PRO	0	MACK ENERGY CORP	ED	C 03060				Shallow	4	4	4	10	23S	27E	578098	3575460
C 03808	C	PRO	0	MACK ENERGY CORP	ED	C 03060				Shallow	4	4	4	10	23S	27E	578098	3575460
C 00098 A	CUB	IRR	12	ROBERT BINDEL	ED	C 00098 A-S-3					3	2	4	09	23S	27E	576273	3575833*
C 01083	C	DOM	3	JOE P. PETSKA	ED	C 01083				Shallow		4	2	15	23S	27E	578003	3574751
C 03884	C	PRO	0	MACK ENERGY CORP	ED	C 01083				Shallow		4	2	15	23S	27E	578003	3574751
C 03885	C	PRO	0	MACK ENERGY CORP	ED	C 01083				Shallow		4	2	15	23S	27E	578003	3574751
C 03886	C	PRO	0	MACK ENERGY CORP	ED	C 01083				Shallow		4	2	15	23S	27E	578003	3574751
C 00195	CUB	IRR	582	M.E. SIBLEY	ED	C 00195				Shallow	4	1	4	09	23S	27E	576069	3575827*
C 00068	CUB	IRR	305	NEW MEXICO INTERSTATE STREAM	ED	C 00068				Shallow	1	3	1	10	23S	27E	576673	3576441*
C 02932	C	DOL	3	DALE L JOHNSON	ED	C 02932					1	3	1	10	23S	27E	576673	3576441*
C 04246	C	DOL	3	DALE JOHNSON	ED	C 04246 POD1	221E1				2	4	2	09	23S	27E	576549	3576395
C 03768	C	PRO	0	JACK WAGON LLC	ED	C 03768 POD1					1	3	1	14	23S	27E	578366	3574886
C 00420	CUB	CLS	0	CARPER DRILLING CO.	ED	C 00420		C				4	2	09	23S	27E	576370	3576337*
C 03178	C	DOL	0	I G VASQUEZ	ED	C 03178					2	1	1	14	23S	27E	578506	3575262*
C 03766	C	PRO	0	JACK WAGON LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 03999	C	PRO	0	WATER SPUR LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 04000	C	PRO	0	WATER SPUR LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 04001	C	PRO	0	WATER SPUR LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 04174	C	PRO	0	CAZA OPERATING LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 04175	C	PRO	0	CAZA OPERATING LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 04176	C	PRO	0	CAZA OPERATING LLC	ED	C 03766 POD1	NA			Shallow	3	3	1	14	23S	27E	578373	3574609
C 01168	C	STK	3	DAVID D. CARRASCO	ED	C 01168							2	10	23S	27E	577783	3576560*
C 00291	CUB	IRR	315	KELLY & MARTHA SKEEN	ED	C 00291	NA			Shallow	4	3	3	11	23S	27E	578581	3575407
C 04162	C	PRO	0	MARTHA W & KELLY SKEEN TESTAMENTARY TRUST	ED	C 00291	NA			Shallow	4	3	3	11	23S	27E	578581	3575407
C 04163	C	PRO	0	MARTHA W & KELLY SKEEN TESTAMENTARY TRUST	ED	C 00291	NA			Shallow	4	3	3	11	23S	27E	578581	3575407
C 04164	C	PRO	0	MATADOR RESOURCES COMPANY	ED	C 00291	NA			Shallow	4	3	3	11	23S	27E	578581	3575407
C 03997	CUB	MON	0	WATER SPUR LLC	ED	C 03997 POD1				Shallow	2	3	1	14	23S	27E	578534	3574872
C 04010	C	PRO	0	WPX ENERGY INC	ED	C 03997 POD1				Shallow	2	3	1	14	23S	27E	578534	3574872
C 04011	C	PRO	0	WPX ENERGY INC	ED	C 03997 POD1				Shallow	2	3	1	14	23S	27E	578534	3574872
C 04012	C	PRO	0	WATER SPUR LLC	ED	C 03997 POD1				Shallow	2	3	1	14	23S	27E	578534	3574872
C 03767	C	PRO	0	JACK WAGON LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702
C 04002	C	PRO	0	WATER SPUR LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702
C 04003	C	PRO	0	WATER SPUR LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702
C 04004	C	PRO	0	WATER SPUR LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702
C 04177	C	PRO	0	CAZA OPERATING LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702
C 04178	C	PRO	0	CAZA OPERATING LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702
C 04179	C	PRO	0	CAZA OPERATING LLC	ED	C 03767 POD1	NA			Shallow	4	3	1	14	23S	27E	578503	3574702

C 04076	CUB	EXP	0	WATER SPUR LLC	ED	C 04076 POD1	NA		Shallow	2	3	1	14	23S	27E	578553	3574786
C 04129	C	PRO	0	WPX ENERGY INC	ED	C 04076 POD1	NA		Shallow	2	3	1	14	23S	27E	578553	3574786
C 04130	C	PRO	0	WPX ENERGY INC	ED	C 04076 POD1	NA		Shallow	2	3	1	14	23S	27E	578553	3574786
C 04131	C	PRO	0	WPX ENERGY INC	ED	C 04076 POD1	NA		Shallow	2	3	1	14	23S	27E	578553	3574786
C 01260	CUB	EXP	0	OTIS WATERUSERS COOP.	ED	C 01260							16	23S	27E	575775	3574503*

Record Count: 53

UTMNAD83 Radius Search (in meters):

Easting (X): 577129.6 **Northing (Y):** 3575280.38 **Radius:** 1610

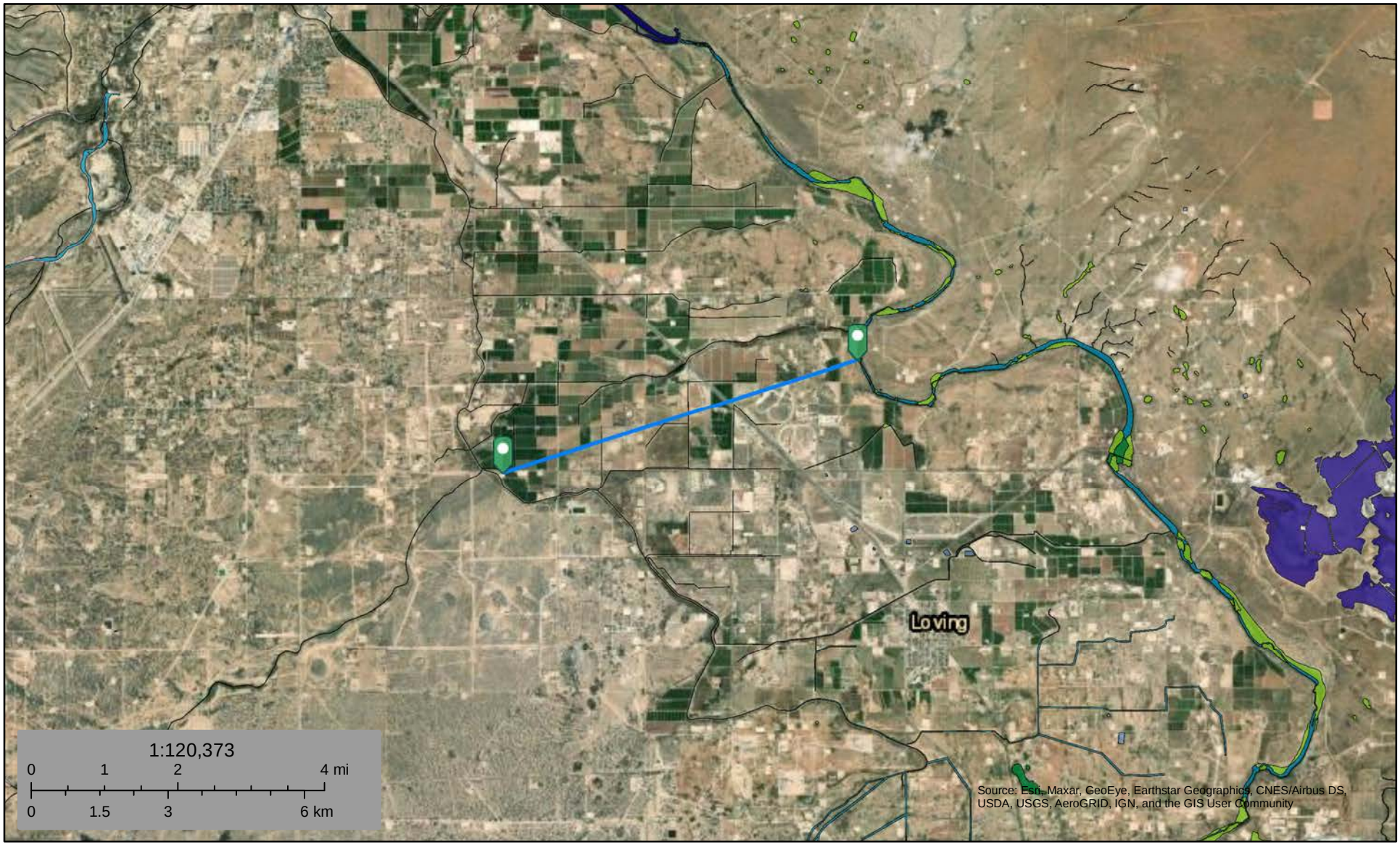
Sorted by: Distance

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

U.S. Fish and Wildlife Service

National Wetlands Inventory

Nearest Wetland 22,659 Feet



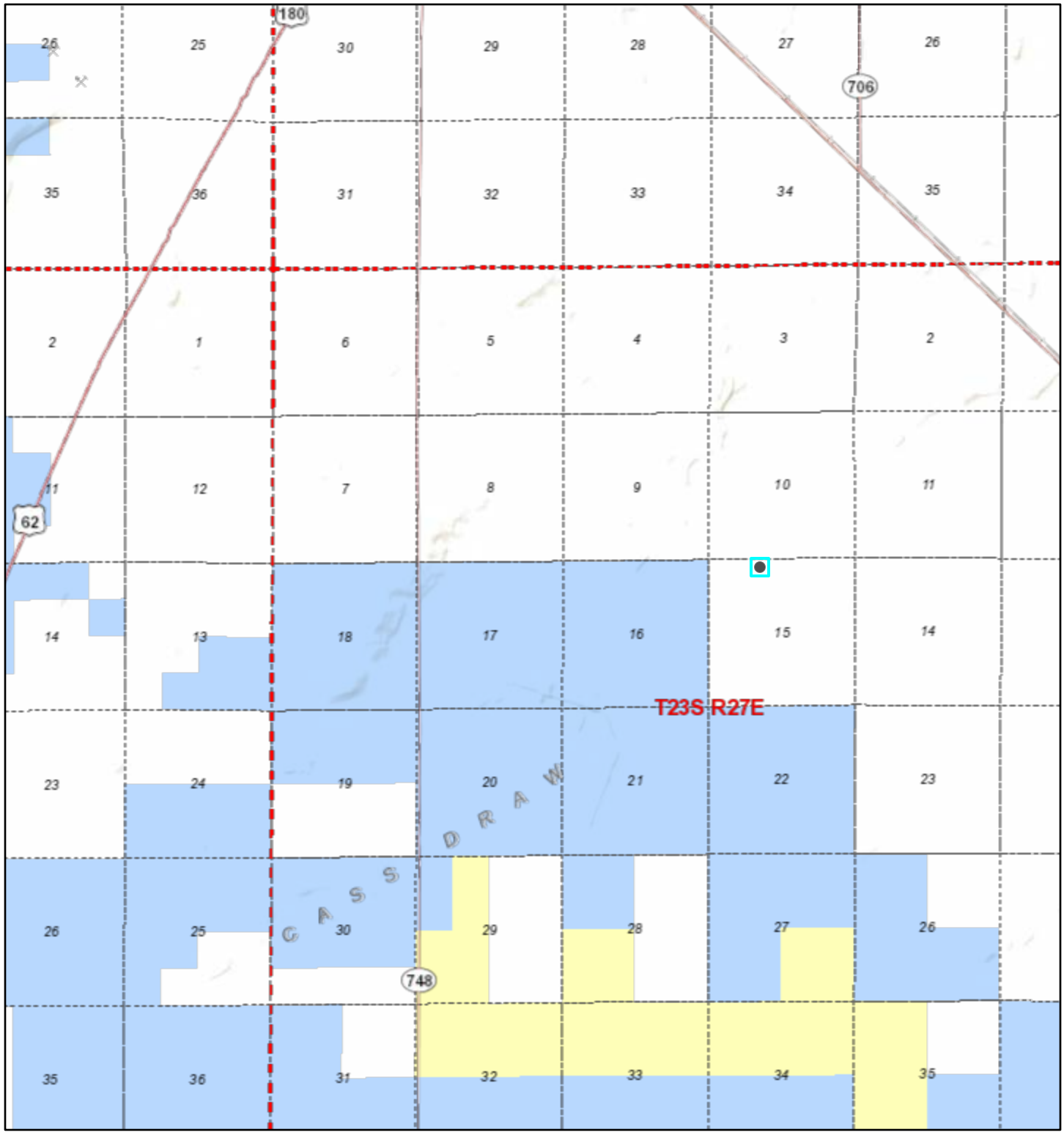
March 22, 2022

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.

Active Mines in New Mexico



3/22/2022, 9:48:14 AM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Township / Range

Sections

Land Ownership

Bureau of Land Management

Bureau of Reclamation

Department of Agriculture

Department of Defense

Department of Energy

National Park Service

Private Land

State Game and Fish

State Land

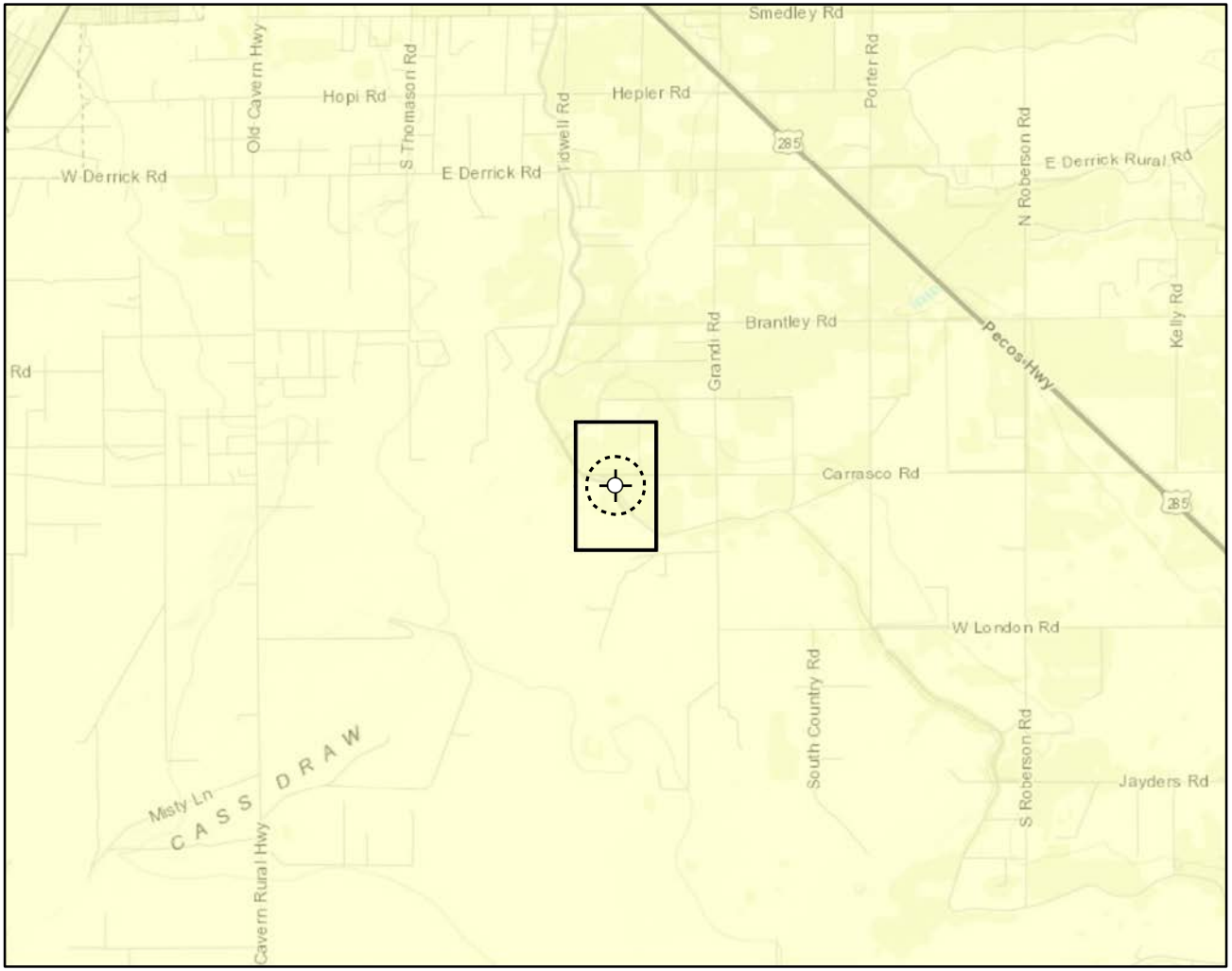
State Parks

Tribal

U.S. Bureau of Land Management - New Mexico State Office, Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

EMNRD MMD GIS Coordinator

New Mexico Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)



Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.311695, -104.180656

NAD 1983 UTM Zone 13N
Date: Mar 25/22

N

Karst Potential Map
Skeleton Fee #2

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 20XX; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

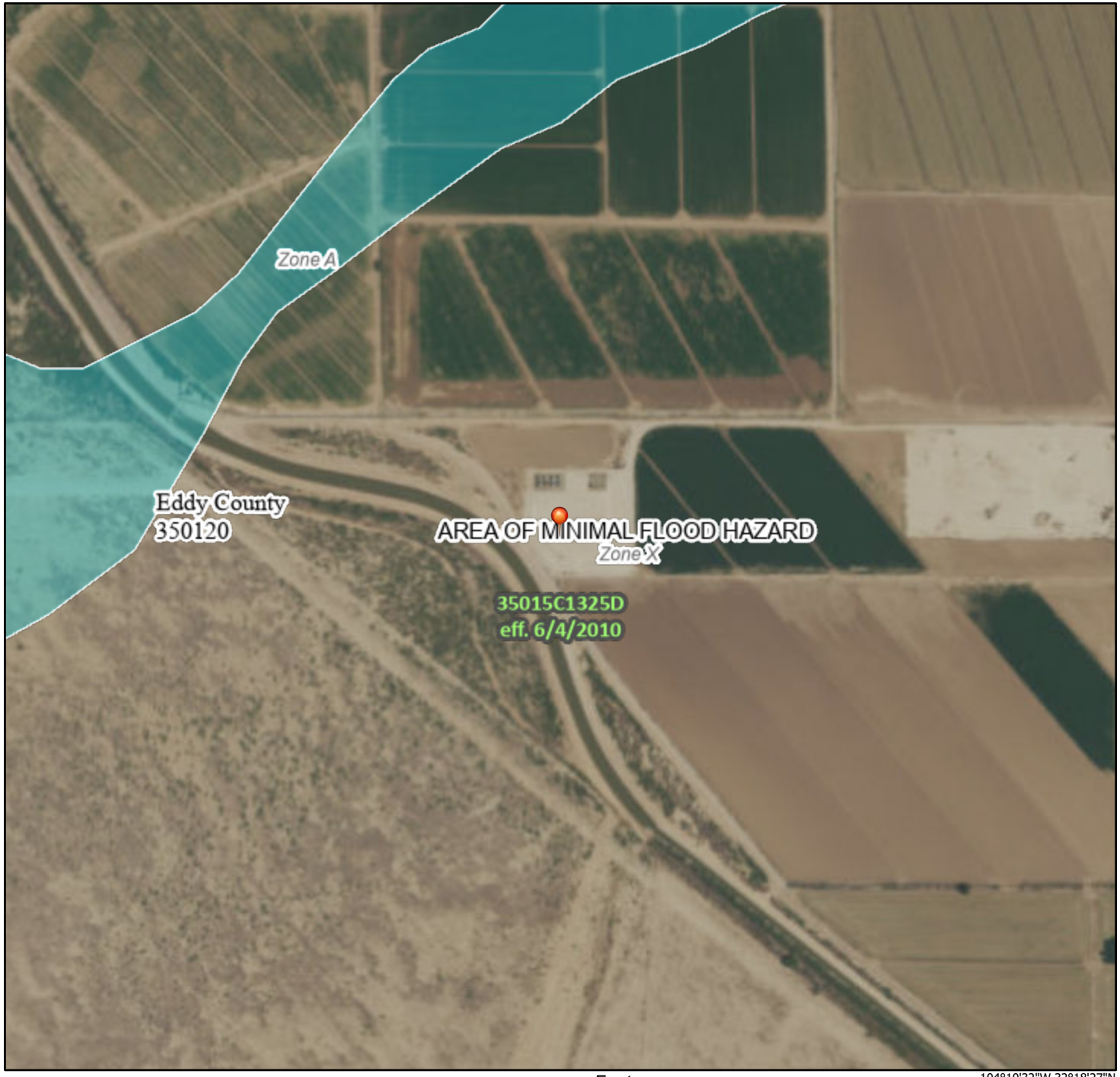
VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\22E-01035 - Skeleton Fee #2\Figure X Karst Potential Map Skeleton Fee #2.mxd

National Flood Hazard Layer FIRMette

FEMA

104°11'9"W 32°18'57"N



104°10'32"W 32°18'27"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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 3/22/2022 at 11:55 AM 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.

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

March 29, 2022

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 17, Sep 12, 2021

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

Date(s) aerial images were photographed: Feb 27, 2020—Feb 28, 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
Pe	Pima silt loam, 0 to 1 percent slopes	1.4	39.8%
Rc	Reagan loam, 0 to 1 percent slopes	2.1	60.2%
Totals for Area of Interest		**3.5**	**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

Pe—Pima silt loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 1w58
Elevation: 600 to 4,200 feet
Mean annual precipitation: 8 to 25 inches
Mean annual air temperature: 60 to 70 degrees F
Frost-free period: 195 to 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pima and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pima

Setting

Landform: Flood plains, alluvial flats, alluvial fans
Landform position (three-dimensional): Talf, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Alluvium

Typical profile

H1 - 0 to 3 inches: silt loam
H2 - 3 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 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: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R042XC017NM - Bottomland
Hydric soil rating: No

Minor Components

Dev

Percent of map unit: 1 percent

Ecological site: R042XC017NM - Bottomland
Hydric soil rating: No

Reagan
Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Rc—Reagan loam, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: 1w5l
Elevation: 1,100 to 5,300 feet
Mean annual precipitation: 7 to 15 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 200 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Reagan and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reagan

Setting
Landform: Fan remnants, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits

Typical profile
H1 - 0 to 8 inches: loam
H2 - 8 to 82 inches: loam

Properties and qualities
Slope: 0 to 1 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: Very slightly saline to moderately saline (2.0 to 8.0 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): 6c
Hydrologic Soil Group: B
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Minor Components

Reeves

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Reagan

Percent of map unit: 1 percent
Ecological site: R042XC007NM - Loamy
Hydric soil rating: No

Upton

Percent of map unit: 1 percent
Ecological site: R042XC025NM - Shallow
Hydric soil rating: No

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USDA Natural Resources Conservation Service

Ecological site R042XC007NM
Loamy

Accessed: 03/29/2022

General information

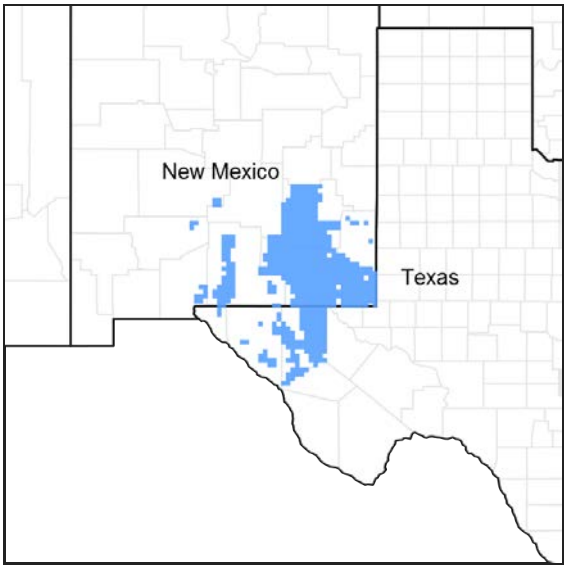


Figure 1. Mapped extent

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on uplands landforms, mainly on hill slopes, ridges, plains, terraces and some fan remnants. Slopes range from 1 to 5 percent and average about 3 percent. Average annual precipitation is about 8 to 14 inches. Elevations range from 2,842 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Terrace (3) Fan piedmont
Flooding frequency	None
Ponding frequency	None
Elevation	2,842–5,000 ft
Slope	0–5%
Aspect	E, S, W

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost 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 this site. Strong winds blow from the southwest in January through June rapidly drying out the soil during a critical time for cool season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

This site is not influenced by wetland or streams.

Soil features

The soils of this site are deep to moderately deep. The moderately deep soils have either a petrocalcic, petrogypsic or gypsum horizon between 30 and 40 inches.

Surface textures are loam, silt loam, very fine sandy loam, or clay loam. Substratum textures are loam, silty clay loam, clay loam, or silt loams. Subsoil textures are silt loam , clay loam silty clay loam, gravelly loam, gravelly clay loam or very gravelly loam. Permeability is moderate to slow and the available water holding capacity is high to moderate. The Atoka, Reeves, Russler, Milner soils may have highr amounts of CaC03, ranging as high as 40 percent in the subsoil. Rock fragments range fro 5 to 50 percent in the subsoil. Reeves, Rusler, Milner, Holloman soils will have 40 to 80 percent gypsum in the underlying material.

Maximum and minimum values listed below represent the characteristic soils for this site.

Characteristic Soils:

Atoka (petrocalcic)
Bigetty
Reagan
Reakor
Reeves (gypsum)
Russler (gypsum)
Largo
Russler (gypsum)
Largo
Berino
Tinney
Midessa
Ratliff

Holloman (gypsum)
Milner (gypsum)

Table 4. Representative soil features

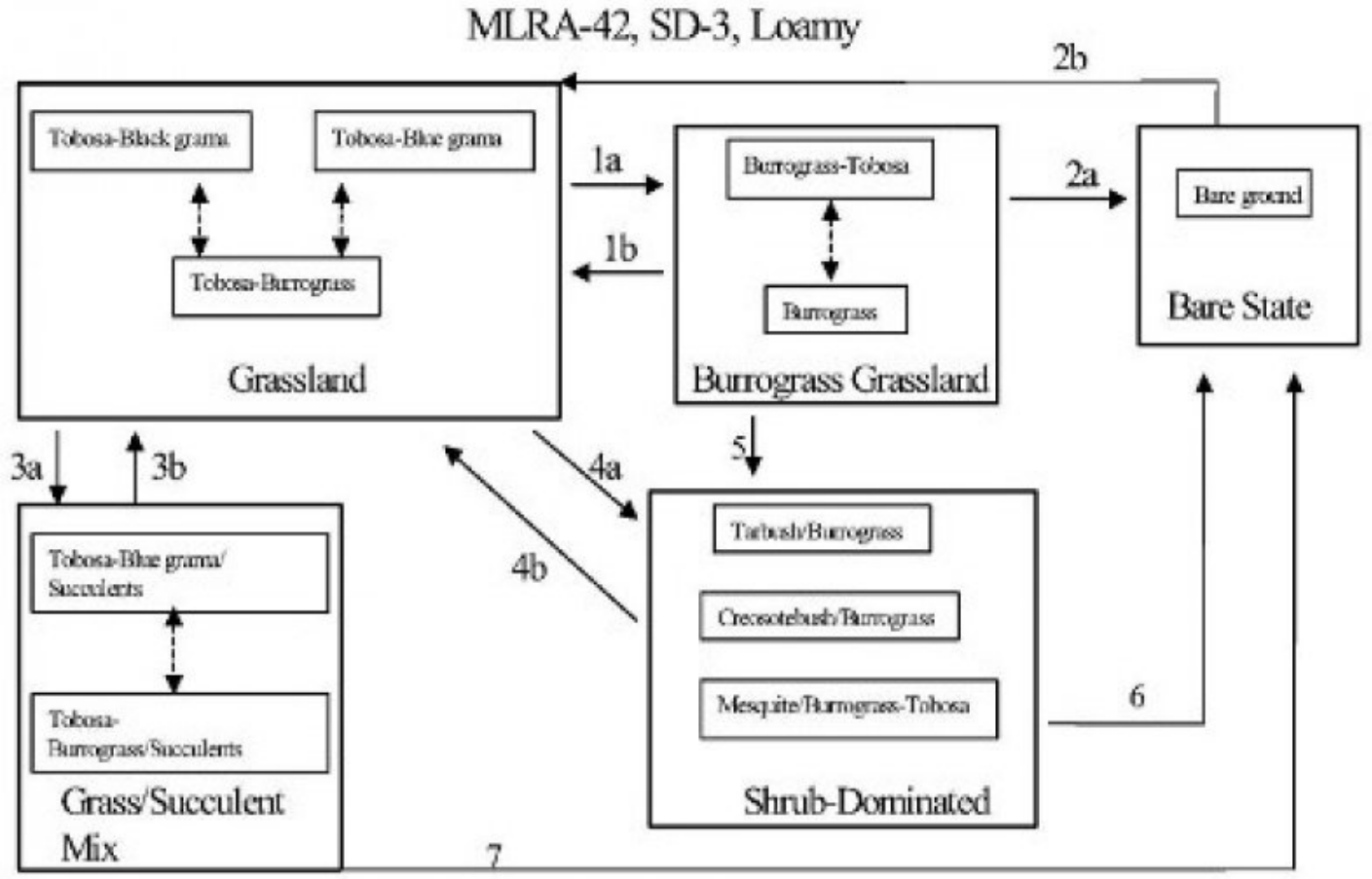
Surface texture	(1) Loam (2) Very fine sandy loam (3) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to slow
Soil depth	30–72 in
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–12 in
Calcium carbonate equivalent (0-40in)	0–10%
Electrical conductivity (0-40in)	0–8 mmhos/cm
Sodium adsorption ratio (0-40in)	0–6
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–5%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Overview: The Loamy site is associated with the Gyp Upland ecological site with which it intergrades. There is a pronounced increase in alkali sacaton along this interface. The loamy site is also associated with the Gravelly and Shallow ecological sites from which it receives run-on water. The Draw site often dissects Loamy sites and is distinguished from the Loamy site by increased production or greater densities of woody species. The historic plant community has a grassland aspect, dominated by grasses with shrubs and half-shrubs sparse and evenly distributed. Tobosa, black grama and blue grama are the dominant species. Retrogression within this state is characterized by a decrease in black and blue grama and an increase in burrograss. Continuous overgrazing and drought can initiate a transition to a Burrograss- Grassland state. Continued reduction in grass cover and resulting infiltration problems may eventually effect a change to a Bare State, with very little or no remaining grass cover. Alternatively, creosotebush, tarbush or mesquite may expand or invade. Transitions back to a Grassland State from a Bare or Shrub-Dominated state are costly and may not be economically feasible. Decreased fire frequency may play a part in the transition to the Grass/Succulent Mix state with increased amounts of cholla and prickly pear.

State and transition model

Plant Communities and Transitional Pathways (diagram)



1a. Soil drying, overgrazing, drought, soil surface sealing. 1b. Restore natural overland flow, increase infiltration, prescribed grazing.

2a. Severe reduction in cover, soil surface sealing, decreased infiltration, erosion. 2b. Restore hydrology, break up physical crust, range seeding, prescribed grazing.

3a. Lack of fire, overgrazing, hail storms or other physical disturbance, drought. 3b. Prescribed fire, brush control, prescribed grazing.

4a. Seed dispersal of shrubs, persistent loss of grass cover, competition by shrubs, lack of fire. 4b. Brush control, range seeding -dependent on amount of grass (seed bank) remaining.

5. Loss of grass cover, seed dispersal of shrubs, competition by shrubs.

6. & 7. Brush control with continued loss of grass cover, soil sealing, erosion.

Figure 4.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

State Containing Historic Climax Plant Community
Grassland:

The historic plant community has a grassland aspect, dominated by grasses with shrubs and half-shrubs sparse and evenly distributed. Black grama, blue grama, and tobosa are the dominant grass species. There are a variety of

perennial forbs and their production varies widely by season and year. Globemallow, verbena, groundsels, croton and filaree are forbs commonly found on this site. Fourwing saltbush and winterfat are two of the more palatable shrubs. The Loamy ecological site encompasses a wide variety of soils, with surface textures ranging from sandy loams to clay loams. Soil depths range from shallow to very deep and can include sub surface features such as calcic, petrocalcic, and gypsic horizons. These variations cause differences in plant community composition and dynamics. Black grama is found at highest densities on coarser textured sandy loams, with blue grama preferring finer textured loam and silt loam, and tobosa favoring lower landscape positions and loam to clay loam surface textures. Burrograss may often be the dominant grass species on silty soils, perhaps in part due to the seedlings ability to auger into and establish on physically crusted soils. Gypsum influenced soils typically have greater amounts of tobosa, burrograss, and ephedra. There is greater representation of sideoats and vine mesquite within the tobosa-blue grama community. Retrogression under continuous heavy grazing results in a decrease of black grama, blue grama, sideoats grama, plains bristlegrass, bush muhly, cane bluestem, vine mesquite, winterfat, and fourwing saltbush. Species such as burrograss, threeawns, sand dropseed, sand muhly, and broom snakeweed increase under continuous heavy grazing or prolonged periods of drought. Under continued retrogression burrograss can completely dominate the site. Creosotebush, tarbush, and mesquite, can also dominate. Cholla and prickly pear can increase on areas that are disturbed or overgrazed.

Diagnosis: Tobosa, black grama, and blue grama are the dominant species. Grass cover is uniformly distributed with few large bare areas. Shrubs are sparse and evenly distributed. Slopes range from level to gently sloping and usually display limited evidence of active rills and gully formation if plant cover remains intact. Litter movement associated with overland flow is limited to smaller size class litter and short distances.

Other shrubs include: yucca, mesquite, tarbush, cholla and creosote bush.

Other forbs include: desert holly, scorpionweed, bladderpod, flax, nama, fleabane, Indianwheat, Indian blanket flower, groundcherry, deerstongue, and rayless goldenrod.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	585	833	1080
Forb	39	55	72
Shrub/Vine	26	37	48
Total	**650**	**925**	**1200**

Table 6. Ground cover

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

Figure 6. Plant community growth curve (percent production by month).

NM2807, R042XC007NM Loamy HCPC. R042XC007NM Loamy HCPC Warm Season Plant Community..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	10	10	25	30	15	5	0	0

State 2
Burrograss-Grassland

Community 2.1
Burrograss-Grassland

Burrograss-Grassland: Changes in hydrology resulting in decreased available soil moisture, reduces grass cover and increases bare ground. Burrograss is the dominant grass. Tobosa cover is variable and can range from sizeable areas to small patches occupying only depressions or the lowest and wettest positions within the site. Threeawns, ear muhly, sand muhly, and fluffgrass occur at increased densities compared to the grassland state. Shrub densities may increase especially mesquite, creosotebush or tarbush. Retrogression within this state is characterized by a further decrease in grass cover and increased bare ground. Further deterioration of this site can result in the transition to a bare state or becoming shrub dominated.

Diagnosis: Burrograss is the dominant species. Grass cover is no longer uniformly distributed, instead tending to be patchy with large areas of bare ground present. Physical crusts are present in bare areas reducing infiltration and suppressing seedling establishment by any grass species other than burrograss.

Transition to Burrograss-Grassland (1a): Transitions from grassland to a burrograss-grassland state may occur due to changes in hydrology. Gullies, roads or obstructions that alter natural water flow patterns may cause this transition. Changes in surface hydrology may also occur due to overgrazing or drought. The reduction in grass cover promotes increased soil physical crusts and reduces infiltration. 5

Key indicators of approach to transition:
? Diversion of overland flow resulting in decreased soil moisture.
? Increase in amount of burrograss cover
? Reduction in grass cover and increase in size and frequency of bare patches.
? Formation of physical crusts—indicating reduced infiltration.
? Evidence of litter movement—indicating loss or redistribution of organic matter.

Transition back to Grassland (1b) The natural hydrology of the site must be returned. Culverts, turnouts, or rerouting roads may help re-establish natural overland flow, if roads or trails have altered the hydrology. Erosion control structures or shaping and filling gullies may help regain natural flow patterns and establish vegetation if the flow has been channeled. Breaking up physical crusts by soil disturbance may promote infiltration and seedling emergence. Allow natural revegetation to take place. Prescribed grazing will help ensure proper forage utilization and reduce grass loss due to grazing.

State 3
Bare State

Community 3.1
Bare State

Bare State: Extremely low ground cover, soil degradation and erosion characterize this state. Very little vegetation remains. Burrograss is the dominant grass and cover is extremely patchy. Physical soil crusts are extensive. Erosion and resource depletion increase as site degrades.

Diagnosis: Very little cover remains. Erosion is evident by soil sealing, water flow patterns, pedestals or terracettes. Rills and gullies may be present and active.

Transition to Bare State (2a): Extended drought, continuous heavy grazing, or other disturbance that severely

depletes grass cover can effect this transition. As grass cover decreases, sheet flow and erosion increase, and physical soil crusts form, thereby further reducing infiltration.

Key indicators of approach to transition:
? Continued reduction in grass cover.
? Increased soil surface sealing.
? Increased erosion.
? Reduced aggregate stability in bare areas.

Transition back to Grassland (2b) Restore the hydrology, see (1a). With the extent of grass loss range seeding may be necessary. Utilizing livestock or mechanical means to break up the physical crusts may increase infiltration and aid seedling establishment. Prescribed grazing will help ensure adequate deferment period following seeding, and proper forage utilization once the grass stand is well established. The degree to which this site is capable of recovery depends on the restoration of hydrology, extent of degradation to soil resources, and adequate rainfall necessary to establish grasses.

State 4
Grass/Succulent Mix

Community 4.1
Grass/Succulent Mix

Grass / Succulent Mix: Increased representations of succulents characterize this site. Increased densities of cholla or pricklypear is recognized as a management concern, but their impact on grass production is unclear. Light to medium cholla or prickly pear infestation doesn't seem to greatly reduce grass production, however it limits access to palatable grasses and interferes with livestock movement and handling. Tobosa and blue grama are the dominant species on this site. Retrogression within this site is characterized by a decrease in blue grama and an increase in succulents, tobosa and burrograss.

Diagnosis: Cholla or prickly pear is found at increased densities. Grass cover is variable ranging from uniformly distributed to patchy with frequent areas of bare ground present. Tobosa or blue grama is the dominant grass species.

Transition to Grass/Succulent Mix (3a): If fire was historically a part of desert grassland ecosystem and played a role in suppressing seedlings of shrubs and succulents, then fire suppression may favor the increase of succulents.1 Heavy grazing by livestock or other physical disturbances may help disseminate seed and increase the establishment of succulents. Areas historically overgrazed by sheep are sometimes associated with higher densities of Succulents. Intense hailstorms can spread pricklypear by breaking off joints causing new plants to take root.3 During severe drought perennial grass cover can decline significantly, leaving resources available for use by more drought tolerant succulents. Cholla and pricklypear are both adapted to and favored by drought due to the ability of their shallow, wide spreading root systems to absorb and store water.4

Key indicators of approach to transition:
? Decrease or change in distribution of grass cover.
? Increase in amount of succulent seedlings.
? Increased cover of succulents.

Transition back to Grassland (3b) Fire is an effective means of controlling cholla and prickly pear if adequate grass cover remains to carry fire.2 Cholla greater than two feet tall or pricklypear with a large amount of pads (>15-20) are harder to kill. Chemical control is effective in controlling prickly pear and cholla; apply when growth starts in May. Hand grubbing is also effective if cholla or pricklypear is severed 2-4 inches below ground and care is taken not to let broken joints or pads take root. Stacking and burning piles and grubbing during winter or drought help keeps broken joints and pads from rooting. Prescribed grazing will help ensure proper forage utilization and sustain grass cover.

State 5
Shrub Dominated

Community 5.1
Shrub Dominated

Shrub Dominated: Increased shrub cover characterizes this state. Mesquite, creosotebush, and/or tarbush are the dominant shrub species. Burrograss or tobosa is the dominant grass species. Grass cover is decreased, typically patchy with large bare areas present; however, sometimes grass cover can remain relatively high for extended periods when associated with light to moderate infestations of mesquite. Variations in soil characteristics play a part in determining which shrub species increase. Mesquite is well adapted to a wide range of soil types, but increases more often on deep soils low in carbonates, that have a sandy surface overlying finer textured soils. Tarbush prefers finer textured, calcareous soils, usually in lower positions that receive some extra water. Creosotebush is less tolerant of fine textured soils, preferring sandy, calcareous soils that have some gravel. Creosotebush also does well on soils that are shallow over caliche. Retrogression within this state is characterized by a decrease in tobosa, and an increase in burrograss. As the site continues to degrade shrub cover continues to increase and grass cover is severely reduced.

Diagnosis: Mesquite, Creosotebush, and/or tarbush are the dominant shrubs. Blue grama and black grama cover is low or absent. Burrograss or tobosa are the dominant grasses. Typically grass cover is patchy with large interconnected bare areas present. Physical soil crusts are present, especially on silt loam surface soils.

Transition to Shrub Dominated (4a): Wildlife and livestock consume and disperse mesquite seeds. Flood events may wash creosote or tarbush seeds off adjacent gravelly sites onto the loamy site and supply adequate moisture for germination. Persistent loss of grass cover due to overgrazing or drought can cause large bare patches, providing competition free areas for shrub seedling establishment. As shrub cover increases, competition for soil resources, especially water, becomes a major factor in further reducing grass cover. Reduction of fire, due to either fire suppression policy or loss of adequate fine fuels may increase the probability of shrub encroachment. Increased soil surface physical crusts and associated decreased infiltration, may prevent the establishment of grass seedlings.

Transition to Shrub Dominated (5): The dispersal of creosotebush, tarbush or mesquite seed, combined with loss of grass cover and resource competition by shrubs may cause this transition.

Key indicators of approach to transition:
? Decreased grass and litter cover.
? Increased bare patch size.
? Increased physical soil crusts.
? Increased amount of mesquite, creosotebush, or tarbush seedlings.
? Increased shrub cover.

Transition back to Grassland (4b) Brush control will be necessary to remove shrubs and eliminate competition for resources necessary for grass establishment or reproduction. Seeding may be necessary on those sites where desired grass species are absent or very limited. Pitting and seeding may increase the chances of successful grass establishment. Prescribed grazing will help ensure adequate time is elapsed before grazing seeded area is allowed and proper forage utilization following seeding establishment.

Transition to Bare State (6): If grass cover on the shrub-dominated state is severely limited and shrubs are removed a bare state may result. This transition will depend on amount of grasses or seed remaining, whether site is seeded, or if seeding is successful.

Transition to Bare State (7): Removal of succulents and continued overgrazing or drought may cause loss of remaining grasses and erosion. Soil surface physical crusting may also be an important factor in inhibiting grass seedling establishment

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					

Grass/Grasslike					
1	**Warm Season**			278–324	
	tobosagrass	PLMU3	*Pleuraphis mutica*	278–324	–
2	**Warm Season**			9–46	
	burrograss	SCBR2	*Scleropogon brevifolius*	9–46	–
3	**Warm Season**			231–278	
	black grama	BOER4	*Bouteloua eriopoda*	231–278	–
	blue grama	BOGR2	*Bouteloua gracilis*	231–278	–
4	**Warm Season**			28–46	
	sideoats grama	BOCU	*Bouteloua curtipendula*	28–46	–
5	**Warm Season**			46–93	
	bush muhly	MUPO2	*Muhlenbergia porteri*	46–93	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	46–93	–
6	**Warm Season**			9–28	
	Arizona cottontop	DICA8	*Digitaria californica*	9–28	–
7	**Warm Season**			46–93	
	threeawn	ARIST	*Aristida*	46–93	–
	muhly	MUHLE	*Muhlenbergia*	46–93	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	46–93	–
8	**Warm Season**			28–46	
	Graminoid (grass or grass-like)	2GRAM	*Graminoid (grass or grass-like)*	28–46	–
Shrub/Vine					
9	**Shrub**			9–28	
	fourwing saltbush	ATCA2	*Atriplex canescens*	9–28	–
	jointfir	EPHED	*Ephedra*	9–28	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	9–28	–
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	5–24	–
	Arizona cottontop	DICA8	*Digitaria californica*	5–24	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	5–24	–
10	**Shrub**			9–28	
	javelina bush	COER5	*Condalia ericoides*	9–28	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	9–28	–
	Grass, annual	2GA	*Grass, annual*	5–15	–
11	**Shrubs**			9–28	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	9–28	–
Forb					
12	**Forb**			9–46	
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	9–46	–
	globemallow	SPHAE	*Sphaeralcea*	9–46	–
	verbena	VEPO4	*Verbena polystachya*	9–46	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	5–15	–
	pricklypear	OPUNT	*Opuntia*	5–15	–
13	**Forb**			9–28	
	croton	CROTO	*Croton*	9–28	–

	woolly groundsel	PACA15	*Packera cana*	9–28	–
14	**Forb**			9–28	
	Goodding's tansyaster	MAPIG2	*Machaeranthera pinnatifida ssp. gooddingii var. gooddingii*	9–28	–
	woolly paperflower	PSTA	*Psilostrophe tagetina*	9–28	–
15	**Forb**			9–28	
	redstem stork's bill	ERCI6	*Erodium cicutarium*	9–28	–
	Texas stork's bill	ERTE13	*Erodium texanum*	9–28	–
16	**Forb**			9–28	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	9–28	–

Animal community

This site provides habitats which support a resident animal community that is characterized by pronghorn antelope, black-tailed jackrabbit, black tailed prairie dog, yellow-faced pocket gopher, banner-tailed kangaroo rat, hispid cotton rat, swift fox, burrowing owl, horned lark, mockingbird, meadowlark, mourning dove, scaled quail, Great Plains toad, plains spadefoot toad, prairie rattlesnake and western coachwhip shake.

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
Atoka C
Bigetty B
Ratliff B
Reyab B
Holloman B
Largo B
Holloman B
Bigetty B
Berino B
Reagan B
Reakor B
Reeves B
Russler C

Recreational uses

This site offers limited potential for hiking, horseback riding, nature observation and photography. Game bird, antelope and predator hunting are also limited.

Wood products

This site has no potential for wood products

Other products

This site is suitable for grazing by all kinds and classes of livestock, during all seasons of the year. Under retrogression, such plants as black grama, blue grama, sideoats grama, bush muhly, plains bristlegrass, Arizona cottontop, fourwing saltbush and winterfat decrease and there is an increase in burrograss, threeawns, sand dropseed, muhlys, broom snakeweed and javilinabush. Under continued retrogression, burrograss can completely

dominate the site. Creosotebush, mesquite, and tarbush can also dominate. Grazing management alone will not improve the site in the above situation. This site is well suited 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 3.0 – 4.2
75 – 51 4.1 – 5.5
50 – 26 5.3 – 7.0
25 – 0 7.1 +

Inventory data references

Other 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 Chavez County.

Other references

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Contributors

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Don Sylvester

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.

USDA Natural Resources Conservation Service

Ecological site R042XC017NM
Bottomland

Accessed: 03/29/2022

General information

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on broad valleys, flood plains or basins at the lowest position in relation to adjacent landscapes. They are derived from mixed alluvium for sandstone, shale and limestone. It is found at the mouth of intermittent drainages or draws. Slopes are level to nearly level, averaging less than 3 percent. Elevations range from 2,842 to 4,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Alluvial flat (2) Valley floor (3) Basin floor
Flooding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Flooding frequency	Rare to frequent
Ponding frequency	None
Elevation	2,842–4,000 ft

Slope	1–3%
Aspect	Aspect is not a significant factor

Climatic features

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

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

The average frost-free season is 207 to 220 days. The last killing frost 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 this site. This site receives overflow from heavy summer rains periodically. Occasionally water will stand on the surface for short periods. When this happens frequently, or when water stands for longer periods, only the plants that can tolerate inundation, such as giant sacaton, will survive. During drought periods or when long periods occur between overflows, a variety of plants will move in and establish on the site.

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 may be associated or influenced by wetlands and/or streams but does not normally meet wetland criteria.

Soil features

The soils of this site are deep and very deep. Surface textures are loamy fine sand, very fine sandy loam, fine sandy loam, sandy loam, silty loam, loam, clay loam or silty clay loam. The underlying layers may be loam, silt loam, clay loam, silty clay loam, sandy loam, fine sandy loam or loamy fine sand. These soils may have thin stratas of sand, silt, clay, very fine sand or very fine sandy loam. The soils have rapid to moderately slow permeability.

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

Characteristic Soils:
Glendale
Bippus
Bigetty
Largo
Harkey
Pecos
Pima
Dev
Pima Varient

Table 4. Representative soil features

Surface texture	(1) Loamy fine sand (2) Loam (3) Fine sandy loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to rapid
Soil depth	72 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0–1%
Available water capacity (0-40in)	3–8 in
Calcium carbonate equivalent (0-40in)	3–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–5
Soil reaction (1:1 water) (0-40in)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–15%
Subsurface fragment volume >3" (Depth not specified)	0–1%

Ecological dynamics

The Bottomland site occurs on broad valleys and flood plains at the lowest positions on the landscape and is subject to periodic flooding. This periodic flooding and deep wetting essentially determine vegetation patterns on this site. The Bottomland site is associated with and often found at the mouth of Draw sites. The potential plant community exhibits a tall grass aspect largely dominated by giant sacaton. Soil drying due to overgrazing, gullying, and redirection or blockage of water flow may cause the transition to a tobosa-dominated state. A state dominated by burrograss may result due to continued loss of tobosa, erosion, and soil surface sealing—especially on silt loam and silty clay loam textured surface soils. A mesquite-dominated state may result from the loss of grass cover and dispersal of mesquite seed. Saltcedar may invade in response to changes in the historical flow regimes and the introduction of its seed—especially along stream channels or on soils adjacent to areas with a high water table.

State and transition model

Plant Communities and Transitional Pathways (diagram)

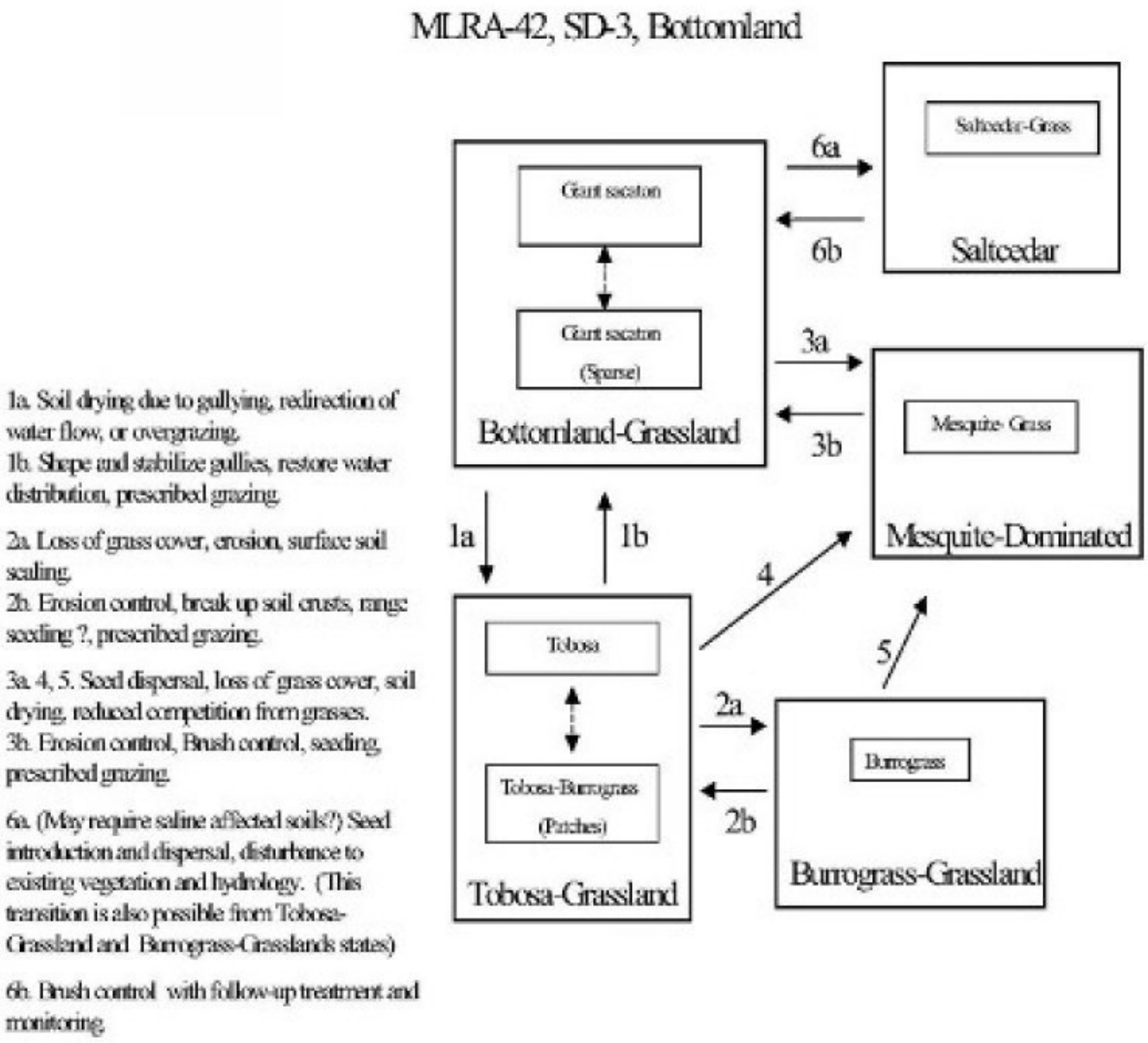

Figure 4.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Bottomland Grassland: The historic plant community is principally dominated by giant sacaton. Some additional grass species representative of this site include alkali sacaton, tobosa, vine mesquite, plains bristlegrass, and twoflower trichloris. Fourwing saltbush and mesquite are two of the more common shrubs associated with this site, but in the historic community they are sparsely scattered across the site. Giant sacaton has the capability to produce large amounts of aboveground biomass, which provides important forage for livestock and helps to slow runoff, increase infiltration, and protect the site from erosion. Grazing in the spring, deferring grazing in the fall, or during

dry summers, can maximize forage production.4 Mowing giant sacaton during the summer may improve forage quality and accessibility while minimizing negative effects on production.3 Fire has produced mixed results depending on time of year and fire intensity. Several growing seasons may be required for giant sacaton to recover pre-burn production levels. Overgrazing, drought, or fire can cause a decrease in giant sacaton, vine mesquite, alkali sacaton, plains bristlegrass, and twoflower trichloris. A sparser, less vigorous sacaton community may result. Continued loss of grass cover increases erosion, effectively drying the site causing the transition to an alternate grassland state (Tobosa Grassland).

Diagnosis: Giant sacaton is the dominant grass. Grass cover is uniform. Litter cover is high, and bare patches are few and less than 2 m in length. Shrubs are sparse, averaging less than three percent canopy cover.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	2125	3188	4250
Shrub/Vine	200	300	400
Forb	175	262	350
Total	**2500**	**3750**	**5000**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	35-40%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	40-45%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	15-20%

Figure 6. Plant community growth curve (percent production by month). NM2817, R042XC017NM Bottomland HCPC. R042XC017NM Bottomland HCPC Warm Season Plant Community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	10	10	25	30	15	5	0	0

State 2
Tobosa Grassland

Community 2.1
Tobosa Grassland

Additional States:

Tobosa Grassland: This state is characterized by the predominance of tobosa. On fine-textured soils that receive surface run-in water, tobosa may attain dense almost pure stands. On drier sites that receive less water due to gullying, or due to decreased infiltration, associated with loss of

grass cover, tobosa occurs in scattered patches with large areas of bare ground. Burrograss is the sub-dominant species. In the absence of grazing, tobosa tends to stagnate and accumulates large amounts of standing dead material. Rotational grazing, or burning during years with adequate precipitation following fire may help to maximize tobosa production and forage quality.1,12 Burning during years with below average precipitation may limit increases in tobosa yield the first year following fire.6

Diagnosis: Tobosa is the dominant grass species. Grass cover is variable (depending on the degree of site degradation) ranging from uniform to patchy.

Transition to Tobosa Grassland (1a) The transition to a tobosa-dominated community is believed to result from decreased available soil moisture due to the redirection or blockage of run-in water, gullying, or overgrazing. Roads or other physical barriers on site or off site may cause the redirection or blockage of run-in water. Reduction of overland flow and decreased residence time of stand water may favor tobosa dominance. Tobosa is favored by sites that receive periodic flooding, but cannot withstand extended periods of inundation. Overgrazing increases runoff rates and gully formation, reduces infiltration, effectively drying the site. Sites with finer textured soils may have a greater susceptibility for dominance by tobosa. 12

Key indicators of approach to transition:
Decreased vigor and cover of giant sacaton
Increase in the amount of tobosa
Reduced overland flow and residence time of standing water
Formation of gullies or deepening of existing channels

Transition back to Bottomland Grassland (1b) The natural hydrology of the site must be restored. Culverts, turnouts, or rerouting roads may help re-establish natural overland flow, if roads or trails have blocked or altered the flow of run-in water. Erosion control structures or shaping and filling gullies may help regain natural flow patterns and establish vegetation if the flow has been channeled. Prescribed grazing will help establish proper forage utilization and maintain grass cover and litter necessary to protect the site from accelerated erosion.

State 3
Burrograss Grassland

Community 3.1
Burrograss Grassland

Burrograss Grassland: Burrograss is the dominant species. Tobosa is typically present in varying amounts, usually in patches or clumps occupying the more moist depressions. Burrograss ranks poor as a forage grass, but begins growth early and is used to some extent when young and green. Burrograss is favored by calcareous fine textured soils and spreads by seed and stolons. It produces large amounts of seed with wiry awns that help in dissemination, and in augering the hardened callus (tip of the seed) into the soil. The ability of burrograss to auger into soils enables it to establish and expand on bare soils prone to crust over with physical and biological crusts.

Diagnosis: Burrograss is the dominant grass species. Grass cover is variable ranging from patchy to very patchy. Large bare areas are present and interconnected. Physical crusts are present and may occupy most of the bare areas.

Transition to Burrograss Grassland (2a) Loss of grass cover, decreased soil moisture, soil surface sealing, and erosion enable this transition. As grass cover declines, organic matter and infiltration decrease. Erosion increases, removing soil and nutrients from bare areas, which results in soil sealing. Burrograss produces substantial amounts of viable seed and is one of the few grasses able to maintain, and even increase, on bottomland soils that are sealed by biological and physical crusts.

Key indicators of approach to transition:
Decrease in cover of tobosa
Increased amount of bare ground
Increased evidence of physical and biological crusts.

Transition back to Tobosa Grassland (2b) Erosion control structures may help regain natural overland flow and increase vegetation cover (see transition1b above). Re-establishing grass cover will further decrease erosion and increase infiltration. Breaking up physical crusts by soil disturbance may promote infiltration and seedling emergence. Seeding may be necessary if inadequate seed source remains. Prescribed grazing will help establish proper forage utilization and maintain grass cover.

State 4
Mesquite-Dominated

Community 4.1
Mesquite-Dominated

Mesquite-Dominated State:
This state is characterized by the dominance of mesquite, and by accelerated erosion. Grass cover is variable, but typically patchy.

Diagnosis: Mesquite is the dominant species in aspect and composition. Grass cover is typically patchy with large, interconnected bare areas present. Giant sacaton and alkali sacaton are absent or restricted to small patches. Tobosa or burrograss are the dominant grasses on this site. Rills and gullies may be common and actively eroding.

Transition to Mesquite-Dominated (3a, 4, 5) The reasons for different pathways in transitions to a mesquite-dominated state versus a tobosa or burrograss grassland with few shrubs are not known. Dispersal of shrub seed, persistent loss of grass cover, and competition between shrubs and remaining grasses for resources may drive this transition. Loss of grass cover reduces infiltration, decreasing available soil moisture necessary for grass seedling establishment. Reduced soil moisture may favor mesquite establishment and survival. Accelerated erosion due to loss of grass cover can relocate organic matter and nutrients from shrub interspaces, and concentrate them around shrub bases.14 This relocation of resources further increases the shrubs competitive advantage.

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.

Transition back to Bottomland Grassland (3b) Erosion control methods such as shaping and filling gullies, net wire diversions, rock and brush dams, etc. may be needed to curtail erosion and restore site hydrology. Brush control will be necessary to overcome competition between shrubs and grass seedlings. Seeding may expedite recovery or may be necessary if an adequate seed source is no longer remaining. Prescribed grazing will help ensure adequate deferment and proper forage utilization following grass establishment. The degree to which this site is capable of recovery depends on the restoration of hydrology, the extent of degradation to soil resources, and adequate rainfall necessary to establish grasses.

State 5
Saltcedar State

Community 5.1
Saltcedar State

Saltcedar State: Saltcedar is an aggressive invader that typically invades on fine-textured soils where its roots can reach the water table, but once established it can survive without access to ground water. It reaches maximum density where the water table is from 1.5 to 6 m deep, and forms more open stands where the water table is deeper. 9,10 Saltcedar is a prolific seed producer. It is resistant to fire, periods of inundation with water, salinity, and re-sprouts following cutting. Saltcedar can also increase soil salinity by up-taking salts and concentrating them in its leaves and subsequent shedding of the leaves to the soil surface.

Diagnosis: This state is characterized by the presence of saltcedar. Saltcedar cover is variable ranging from sparse to dense. Densities may depend on such variables as depth to ground water, timing and duration of flood events, and soil texture and salinity. Grass cover varies in response to saltcedar density.

Transition to Saltcedar State (6a) It is not know if this transition occurs only on saline affected soils, or if it can occur on non-saline sites. Salty Bottomland sites typically have a higher susceptibility to the invasion of saltcedar. The invasion of saltcedar is associated with saline soils, the presence of saltcedar on adjacent sites and dispersal of its seed, and disturbance to existing vegetation or hydrology. Saltcedar propagules must be present to invade and establish on bottomland sites. Disturbance such as fire, grazing, or drought may facilitate the establishment of saltcedar by decreasing the vigor of native vegetation and providing bare areas for saltcedar seedling establishment with minimal competition. Changes in seasonal timing, rate and volume of run-in water may facilitate the establishment of saltcedar on Bottomland sites.8 Damming rivers has reduced flow volume and caused shifts in the timing of peak flow from spring to summer. The reduced flows have increased fine sediments, creating the ideal conditions for saltcedar seedling establishment. Summer water discharges provide water at times consistent with saltcedar seed production. Increases in salinity due to return of irrigation water to streams and ditches may also support the establishment of saltcedar. (This transition should also possible from the Tobosa-Grassland and Burrograss-Grassland states).

Key indicators of approach to transition:
Increase in size and frequency of bare patches.
Changes in timing and volume of peak discharge
Increased soil salinity
Presence of saltcedar propagules

Transition back to Bottomland Grassland (6b) Saltcedar control is costly and often labor intensive. Control programs utilizing herbicide, or herbicide in conjunction with mechanical control or prescribed fire have proven effective in some instances. 5,7,11 Without restoring historical flow regimes, extensive follow-up management may be necessary to maintain the bottomland grassland.13

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				2438–2625	
	big sacaton	SPWR2	*Sporobolus wrightii*	2438–2625	–
2				263–375	
	tobosagrass	PLMU3	*Pleuraphis mutica*	263–375	–
	alkali sacaton	SPAI	*Sporobolus airoides*	263–375	–
3				263–375	
	vine mesquite	PAOB	*Panicum obtusum*	263–375	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	263–375	–
4				113–188	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	113–188	–
	white tridens	TRAL2	*Tridens albescens*	113–188	–
	false Rhodes grass	TRCR9	*Trichloris crinita*	113–188	–
5				113–188	
	Grass, perennial	2GP	*Grass, perennial*	113–188	–
Shrub/Vine					
6				113–188	
	fourwing saltbush	ATCA2	*Atriplex canescens*	113–188	–
7				38–113	
	honey mesquite	PRGL2	*Prosopis glandulosa*	38–113	–
8				38–113	
	Apache plume	FAPA	*Fallugia paradoxa*	38–113	–
	American tarwort	FLCE	*Flourensia cernua*	38–113	–
	littleleaf sumac	RHMI3	*Rhus microphylla*	38–113	–
9				38–113	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	38–113	–
Forb					
10				75–188	
	coyote gourd	CUPA	*Cucurbita palmata*	75–188	–
	common sunflower	HEAN3	*Helianthus annuus*	75–188	–
	broadleaved pepperweed	LELA2	*Lepidium latifolium*	75–188	–
	globemallow	SPHAE	*Sphaeralcea*	75–188	–
11				75–188	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	75–188	–

Animal community

This site provides habitats which support a resident animal community that is characterized by black-tailed jackrabbit, yellow-faced pocket gopher, coyote, meadowlark, mourning dove, scaled quail, sparrow hawk, Western spadefoot toad and Western diamondback rattlesnake. Where this site includes riparian vegetation along the Pecos and Black rivers, the resident animal community is characterized by raccoon, gray fox, muskrat, red-winged blackbird, summer tanager, ferruginous hawk, mourning dove, Gambel's quail, killdeer, tree lizard, Eastern fence lizard, tiger salamander, leopard frog, bullfrog and checkered garter shake.

Most resident birds and Bullock's oriole, blue grosbeak, painted bunting, Swainson's hawk and mourning dove nest. Where aquatic macrophytes occur, yellow-throated warbler nest. Sandhill crane and long-billed curlew winter along the Pecos River and American avocet and blacknecked stilt utilize this site during migration. The golden eagle utilizes larger trees for roosting and occasionally, nesting.

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
Bippus---------- B
Bigetty--------- C
Glendale-------- B
Harkey---------- B
Largo----------- B
Pima------------ B
Dev------------- A
Pecos----------- D/B

Recreational uses

This site offers recreation potential for hiking, nature observation and photography in addition to antelope, quail and dove hunting.

Natural beauty is enhanced by the constrast between this lush vegetated site and the drier, more barren sites which surround it.

Wood products

This site has no real potential for wood products. Where woody species have increased, they can be used for curiosities or small furniture.

Other products

This site is well suited for all kinds and classes of livestock, during all seasons of the year. It is best suited for cows during the growing season. Periodic removal of excess coarse stalk material by burning, shredding or mowing every other year will help to keep new growth avaialble to livestock. Burning, if practiced, should be done in late winter or early spring when soil surface moisture is present. Retrogression is characterized by a decrease in vine-mesquite and vigor of giant sacaton. Alkali sacaton, plains bristlegrass and twoflower trichloris decrease. This causes an increase in tobosa to a point of being a colony type of vegetation. Continued retrogression can cause severe water erosion that can destroy the potential of this site.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index - Ac/AUM
100 - 76---------- 1.0 – 2.3
75 – 51----------- 2.0 – 3.3
50 – 26----------- 3.4 – 6.0
25 – 0------------ 6.1 - +

Other references

Literature References:

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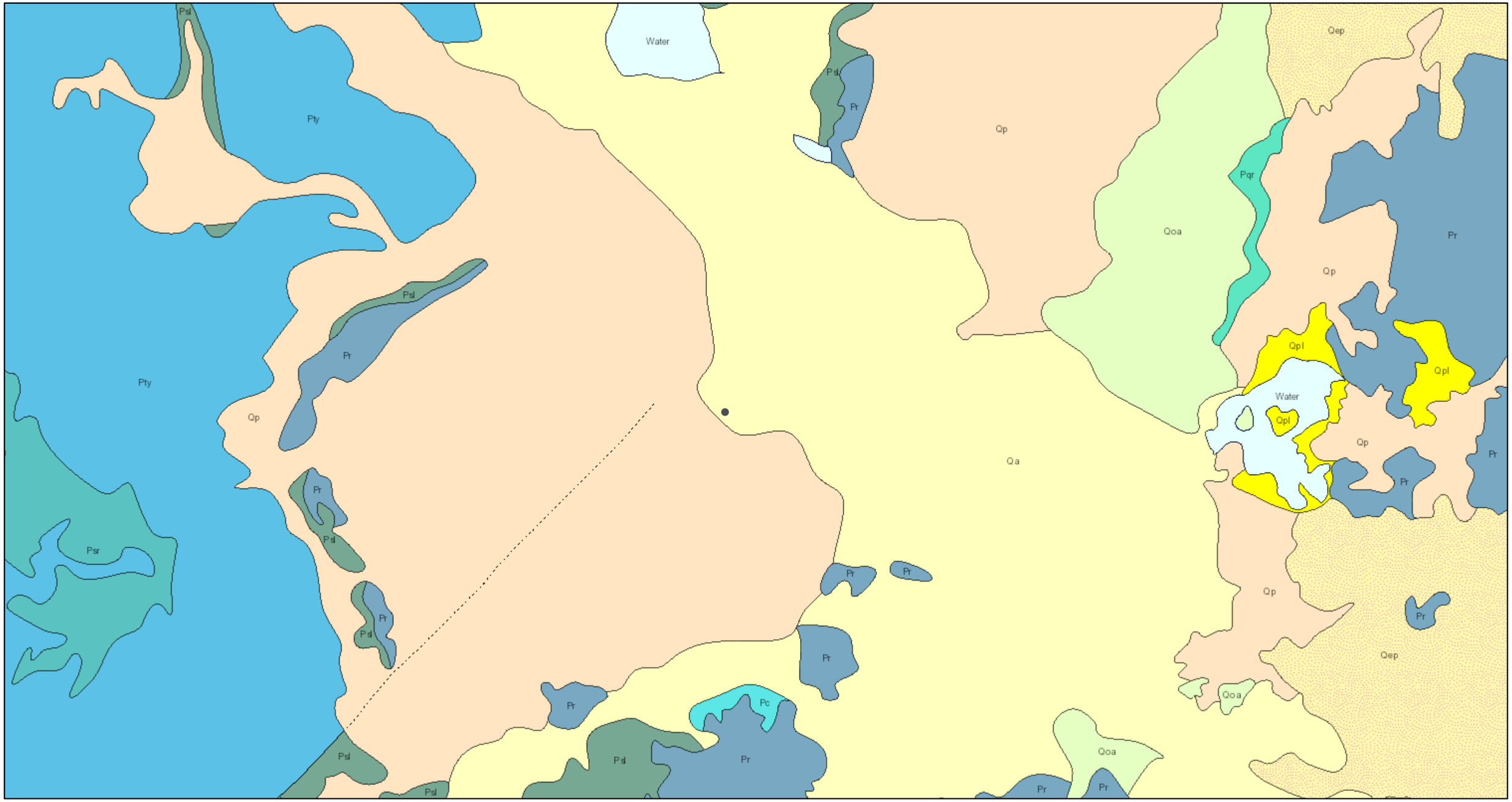
Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

ArcGIS Web Map



3/29/2022, 1:35:36 PM

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0 1.5 3 6 mi

0 2.5 5 10 km

Lithologic Units

- Playa——Alluvium and evaporite deposits (Holocene)
- Water——Perenial standing water
- Qa——Alluvium (Holocene to upper Pleistocene)
- Ql——Landslide deposits and colluvium (Holocene to Pleistocene) — Landslide deposits on western flanks of Socorro Mountains not shown for clarity
- Qpl——Lacustrine and playa deposits (Holocene) — Includes associated alluvial and eolian deposits of major lake basins
- Qp——Piedmont alluvial deposits (Holocene to lower Pleistocene)
- Qe——Eolian deposits (Holocene to middle Pleistocene)
- Qeg——Gypsiferous eolian deposits (Holocene to middle Pleistocene)

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

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 Ecosystems; U.S. Census Bureau TIGER/Line

ATTACHMENT 4

Gmail

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

(no subject)

Dhugal Hanton <vertexresourcegroupusa@gmail.com> Tue, Mar 22, 2022 at 3:25 PM
To: "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>
Cc: dale.woodall@dvn.com, bschafer@vertex.ca
Bcc: cdixon@vertex.ca

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled a liner inspection to be conducted for the following releases:

nAPP2207649081 DOR: 3/16/22 Site Name: Skeleton Fee #002

This work will be completed on behalf of Devon Energy Production Company.

On Monday, April 4, 2022 at approximately 2:00 p.m., Chance Dixon will be on site to conduct a liner inspection. He can be reached at 575-988-1472. If you need directions to the site, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 701-301-1564.

Thank you,

Brandon Schafer
Project Manager

Vertex Resource Services Inc.

P 701.645.3111 Ext. 706
C 701.301.1564
F 780.464.3731

www.vertex.ca

ATTACHMENT 5

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	4/4/2022
Site Location Name:	Skeleton Fee 2	Report Run Date:	4/4/2022 9:41 PM
Client Contact Name:	Wes Matthews	API #:	30-015-42411
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	4/4/2022 11:15 AM
Departed Site	4/4/2022 11:30 AM

Field Notes

11:26 Arrived on site to complete liner inspection for heater treater area.

11:25 Outside of containment looks to be clean and there is no sign of a breach.

11:28 There does not appear to be any significant damage inside or outside the containment wall

11:30 The floor of the liner does not appear to have any significant damage. There is no staining outside of the wall on any side.

Next Steps & Recommendations

1 Submit DFR to the client.

Daily Site Visit Report

Site Photos

Viewing Direction: East

Outside of wall dyke south side.

Viewing Direction: South

Floor of the liner in the middle

Viewing Direction: South

Floor of the liner west side

Viewing Direction: North

Outside of wall dyke west side.

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: South
	
Outside of wall dyke north side.	Outside of wall dyke east side.
Viewing Direction: Southeast	**Viewing Direction**: North
	
Inside wall south side.	Inside wall west side

Daily Site Visit Report

Viewing Direction: North

Inside wall north side.

Viewing Direction: South

Inside wall east side

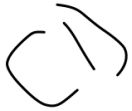
Viewing Direction: South

Floor of the liner east side

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

ATTACHMENT 6

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2207649081
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Dale Woodall	Contact Telephone
Contact email Dale.Woodall@dvn.com	Incident # *(assigned by OCD)*
Contact mailing address 6488 Seven Rivers Hwy Artesia, NM 88210	

Location of Release Source

Latitude 32.311852 Longitude -104.180549

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Skeleton Fee 2 Pad	Site Type Oil
Date Release Discovered 03/17/2022	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
C	15	23S	27E	Eddy

Surface Owner: ☐ State ☐ Federal ☐ Tribal ■ Private (*Name:* Monty Joe Petska)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 24 BBLS	Volume Recovered (bbls) 24 BBLS
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release Equipment malfunction. All fluid stayed within containment.

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State of New Mexico
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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

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

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.

Printed Name: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 03/31/2022

email: Kendra.Ruiz@dvn.com Telephone: 575-748-0167

OCD Only

Received by: Jocelyn Harimon Date: 03/31/2022

State of New Mexico
Oil Conservation Division

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Site Assessment/Characterization

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?	96 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☒ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☒ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☒ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☒ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
n/a Field data
n/a Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
n/a Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
n/a Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

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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.

Printed Name: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 4-18-22

email: Dale.Woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: Date:

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Closure

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 (electronic submittals in .pdf format are preferred) 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.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[N/A] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[X] Description of remediation activities

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.

Printed Name: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 4-18-22

email: Dale.Woodall@dvn.com Telephone: 575-748-1838

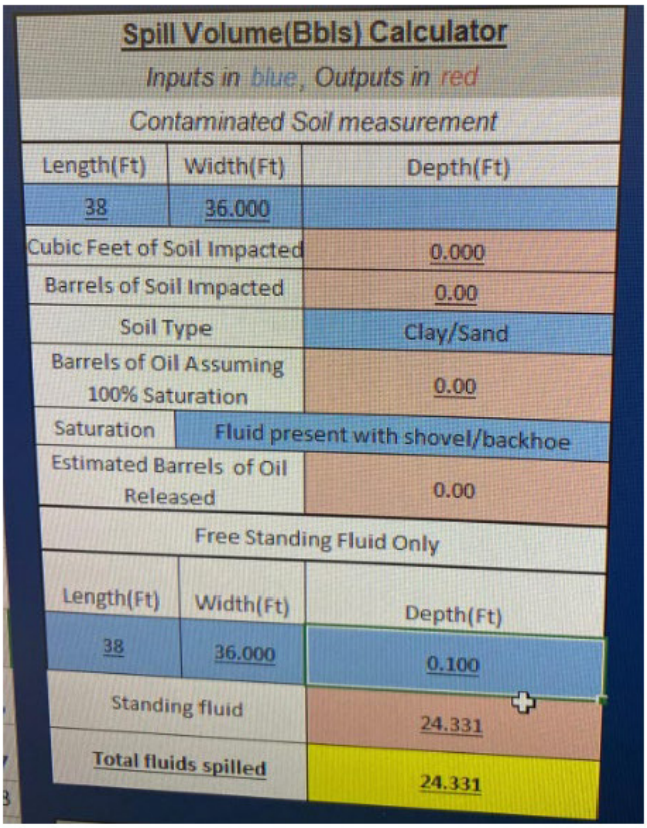
OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____



Spill Volume(Bbls) Calculator

Inputs in blue, Outputs in red

Contaminated Soil measurement

Length(Ft)	Width(Ft)	Depth(Ft)
38	36.000	
Cubic Feet of Soil Impacted		0.000
Barrels of Soil Impacted		0.00
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		0.00
Saturation	Fluid present with shovel/backhoe	
Estimated Barrels of Oil Released		0.00

Free Standing Fluid Only

Length(Ft)	Width(Ft)	Depth(Ft)
38	36.000	0.100
Standing fluid		24.331
Total fluids spilled		24.331

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 99089

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 99089
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NAPP2207649081 SKELETON FEE #002, thank you. This closure is approved.	5/13/2022