| | |
|---|---|
| Incident ID | nAPP2319260257 |
| 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? | <50 (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.
☒ Field data
☒ 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
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ 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 | nAPP2319260257 |
| 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: Env. Professional

Signature: Dale Woodall Date: 10/16/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

**OCD Only**

Received by: Shelly Wells Date: 10/16/2023

| | |
|---|---|
| Incident ID | nAPP2319260257 |
| District RP | |
| Facility ID | |
| Application ID | |

# Remediation Plan

**Remediation Plan Checklist**: ***Each of the following items must be included in the plan.***

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only**: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Env. Professional

Signature: Dale Woodall Date: 10/16/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

**OCD Only**

Received by: Shelly Wells Date: 10/16/2023

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Date:

**Remediation plan conditionally approved with the following:**
**1. If exploratory boring to determine depth tho water is not advanced within 0.5 miles from the release, then the closure standard will be gw<50 ft. below grade. Keep in mind, the boring location should be as close to the point of release as possible.**
**2. Devon has 90-days (May 2, 2024) to submit its appropriate or final remediation closure report.**

## General Information

| | | | |
|---|---|---|---|
| NMOCD District: | District 1 | Incident ID: | nAPP2319260257 |
| Landowner: | Private | RP Reference: | N/A |
| Client: | Devon Energy Production Company, LP | Site Location: | Red Bull 29 Fed #001H |
| Date: | October 11, 2023 | Project #: | 23E-04311 |
| Client Contact: | Dale Woodall | Phone #: | 405.318.4697 |
| Vertex PM: | Kent Stallings | Phone #: | 346.814.1413 |

## Objective

The objective of the environmental remediation work plan is to identify exceedances found during the site assessment and characterization activity at Red Bull 29 Fed #001H, and to propose an appropriate remediation technique to address these areas. Areas of environmental concern identified and delineated include: the east side of the tank containment and surrounding area on pad. The initial C-141 Release Notification was submitted on July 25, 2023 (Attachment 1). Closure criteria have been selected as per New Mexico Administrative Code 19.15.29. All applicable research as it pertains to closure criteria selection is presented in Attachment 2. The closure criteria for the site are presented below.

**Table 1. Closure Criteria for Soils Impacted by a Release**

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

TDS – Total dissolved solids
TPH – Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO),
BTEX – Benzene, toluene, ethylbenzene, and xylenes

### Site Assessment/Characterization

Site characterization was concluded on July 26, 2023. A total of eight sample points were established and 16 samples collected for field screening. All 16 samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis. The sample locations are presented in Attachment 3. Laboratory analysis results have been compared to the above noted closure criteria and the results from the characterization activity are presented in Attachment 4. Exceedances are identified in the table as bold with a grey background.

## Remedial Activities

### General

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation. Laboratory results from the site assessment and characterization have been referenced to estimate both the vertical and horizontal limits of the impacts and the volume of soil to be removed. Soil will be excavated to address surface staining and the extents of sample derived contamination. Field screening will be utilized to confirm removal of contaminanted soil below the applicable closure criteria. Contaminated soils will be stored on a 30mil liner prior to disposal at an approved facility. Once excavation is complete, confirmatory samples will be collected and laboratory analysis completed to confirm closure criteria guidelines are met. Excavations will be backfilled with clean soil sourced locally.

No depth to groundwater data currently exists within 0.5 miles of the site. According to the New Mexico Office of the State Engineer, well number CP-0614-POD2, the nearest depth to groundwater in the area is 303 feet below ground surface (bgs) and well number CP-1099-POD3 depth to groundwater in the area is 282 feet bgs. Vertex proposes a depth to ground water exploratory borehole to be drilled to 105 feet within 0.5 miles of the site, where closure criteria will most likely be as shown below.

**Table 2. Closure Criteria for Soils Impacted by a Release**

| Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS | Constituent | Limit |
|---|---|---|
| > 100 feet | Chloride | 20,000 mg/kg |
| | TPH (GRO+DRO+MRO) | 2,500 mg/kg |
| | GRO+DRO | 1,000 mg/kg |
| | BTEX | 50 mg/kg |
| | Benzene | 10 mg/kg |

TDS – Total dissolved solids
TPH – Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO),
BTEX – Benzene, toluene, ethylbenzene, and xylenes

**nAPP2319260257– Release from Tanks and Containment**

A total of 16 samples were collected for analysis adjacent to the tank containment area. All sample points were established on the site pad. It is expected that excavation of soils will include an approximated 966 square feet area around BH23-02 at a depth of 1 foot under an adjusted closure criteria of greater than 100 feet depth to groundwater, Table 2. Heavy equipment will be used to complete excavation in open areas. A hydrovac truck and hand crew will be utilized to remove contaminated soil in close proximity to the containment area and around any utility lines within or in proximity to the excavation area. Confirmatory samples will be collected as per New Mexico Oil Conservation Division guidance and submitted for laboratory analysis of all applicable parameters. The estimated volume to be excavated is **86 cubic yards**.

| Sample Point | Excavation Depth | Remediation Method |
|---|---|---|
| BH23-02 | 1' | Backhoe |
| Staining | Scrape to 0.5' | Backhoe |

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 346.814.1413 or kstallings@vertex.ca.

Stephanie McCarty — October 11, 2023

Stephanie McCarty, B.Sc. — Date
ENVIRONMENTAL TECHNICIAN, REPORTING

Kent Stallings P.G. — October 12, 2023

Kent Stallings, P.G. — Date
PROJECT MANAGER, REPORT REVIEW

## Attachments

Attachment 1. NMOCD C-141 Report

Attachment 2. Closure Criteria Research

Attachment 3. Characterization Sampling Site Schematic

Attachment 4. Laboratory Results Table and Laboratory Data Report

# 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 | |
| District RP | |
| Facility ID | |
| Application ID | |

# Release Notification

## Responsible Party

| | |
|---|---|
| Responsible Party | OGRID |
| Contact Name | Contact Telephone |
| Contact email | Incident # *(assigned by OCD)* |
| Contact mailing address | |

## Location of Release Source

Latitude _____ Longitude _____
*(NAD 83 in decimal degrees to 5 decimal places)*

| | |
|---|---|
| Site Name | Site Type |
| Date Release Discovered | API# *(if applicable)* |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| | | | | |

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

## 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) | Volume Recovered (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 | | |

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | |
| District RP | |
| Facility ID | |
| Application ID | |

| | |
|---|---|
| Was this a major release as defined by 19.15.29.7(A) NMAC?<br><br>☐ 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: _____ Title: _____

Signature: Kendra Ruiz Date: _____

email: _____ Telephone: _____

**OCD Only**

Received by: Shelly Wells Date: 7/27/2023

| Spill Volume(Bbls) Calculator | | |
|---|---|---|
| *Inputs in blue, Outputs in red* | | |
| *Contaminated Soil measurement* | | |
| Length(Ft) | Width(Ft) | Depth(Ft) |
| | | |
| 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) |
| 30 | 128.000 | 0.042 |
| Standing fluid | | 28.685 |
| **Total fluids spilled** | | **28.685** |

| Spills In Lined Containment | |
|---|---|
| Measurements Of Standing Fluid | |
| Length(Ft) | 125 |
| Width(Ft) | 22 |
| Depth(in.) | 2 |
| **Total Capacity without tank displacements (bbls)** | 81.63 |
| No. of 500 bbl Tanks In Standing Fluid | 5 |
| No. of Other Tanks In Standing Fluid | 0 |
| OD Of Other Tanks In Standing Fluid(feet) | |
| Total Volume of standing fluid accounting for tank displacement. | 53.64 |

**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

| | |
|---|---|
| Operator:<br>DEVON ENERGY PRODUCTION COMPANY, LP<br>333 West Sheridan Ave.<br>Oklahoma City, OK 73102 | OGRID:<br>6137 |
| | Action Number:<br>244510 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| scwells | None | 7/27/2023 |

| | |
|---|---|
| Incident ID | nAPP2319260257 |
| 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? | <50 (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.
☒ Field data
☒ 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
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ 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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Page 4

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | nAPP2319260257 |
| District RP | |
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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: Env. Professional

Signature: Dale Woodall Date: 10/16/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

**OCD Only**

Received by: Date:

State of New Mexico
Oil Conservation Division

| | |
|---|---|
| Incident ID | nAPP2319260257 |
| District RP | |
| Facility ID | |
| Application ID | |

# Remediation Plan

**Remediation Plan Checklist**: ***Each of the following items must be included in the plan.***

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only**: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Env. Professional

Signature: Dale Woodall Date: 10/16/2023

email: dale.woodall@dvn.com Telephone: 575-748-1838

**OCD Only**

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

# ATTACHMENT 2

| Closure Criteria Research | | | |
|---|---|---|---|
| Site Name: Red Bull 29 Fed 1H | | | |
| Spill Coordinates: | | 32.28172539 | -103.3969538 |
| Site Specific Conditions | | Value | Unit |
| 1 | Depth to Groundwater | **303** | feet |
| 2 | Within 300 feet of any continuously flowing watercourse or any other significant watercourse | 8,569 | feet |
| 3 | Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark) | 9,213 | feet |
| 4 | Within 300 feet from an occupied residence, school, hospital, institution or church | 25,640 | feet |
| 5 | i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or** | n/a | feet |
| | ii) Within 1000 feet of any fresh water well or spring | | feet |
| 6 | Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves | No | (Y/N) |
| 7 | Within 300 feet of a wetland | 7,547 | feet |
| 8 | Within the area overlying a subsurface mine | No | (Y/N) |
| 9 | Within an unstable area (Karst Map) | Low | Critical<br>High<br>Medium<br>Low |
| 10 | Within a 100-year Floodplain | 500 | year |
| 11 | Soil Type | Simona fine sandy loam, 0 to 3% slopes | |
| 12 | Ecological Classification | shallow sands | |
| 13 | Geology | Qoa | |
| **NMAC 19.15.29.12 E (Table 1) Closure Criteria** | | >100' | <50'<br>51-100'<br>>100' |

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

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

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

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

| POD Number | Code | POD Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Twn | Rng | X | Y | Distance | Depth Well | Depth Water | Water Column |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 00614 POD2 | | CP | LE | 4 | 3 | 3 | 29 | 23S | 35E | 651102 | 3571401 | 1398 | 440 | 320 | 120 |
| CP 01099 POD3 | | CP | LE | 1 | 1 | 1 | 28 | 23S | 35E | 652478 | 3572932 | 1524 | 930 | 725 | 205 |
| CP 01099 POD2 | | CP | LE | 3 | 3 | 3 | 21 | 23S | 35E | 652968 | 3572750 | 2008 | 750 | 120 | 630 |
| CP 01100 POD3 | | CP | LE | 3 | 2 | 1 | 28 | 23S | 35E | 652987 | 3572726 | 2028 | 950 | 730 | 220 |
| CP 01100 POD2 | | CP | LE | | 2 | 1 | 28 | 23S | 35E | 652995 | 3572726 | 2036 | 750 | 125 | 625 |
| CP 01830 POD1 | | CP | LE | 3 | 3 | 3 | 18 | 23S | 35E | 649289 | 3574568 | 2439 | 460 | 270 | 190 |
| CP 00580 | | CP | LE | 3 | 4 | 3 | 23 | 23S | 34E | 646524 | 3572948* | 4438 | 220 | | |
| CP 00606 | | CP | LE | | 4 | 1 | 23 | 23S | 34E | 646613 | 3573854* | 4474 | 650 | 265 | 385 |
| CP 00499 | | CP | LE | | 3 | 3 | 23 | 23S | 35E | 655875 | 3573194* | 4931 | 150 | | |
| CP 01120 POD1 | | CP | LE | 2 | 3 | 3 | 14 | 23S | 34E | 646366 | 3574753 | 4994 | 397 | 318 | 79 |

Average Depth to Water: **359 feet**
Minimum Depth: **120 feet**
Maximum Depth: **730 feet**

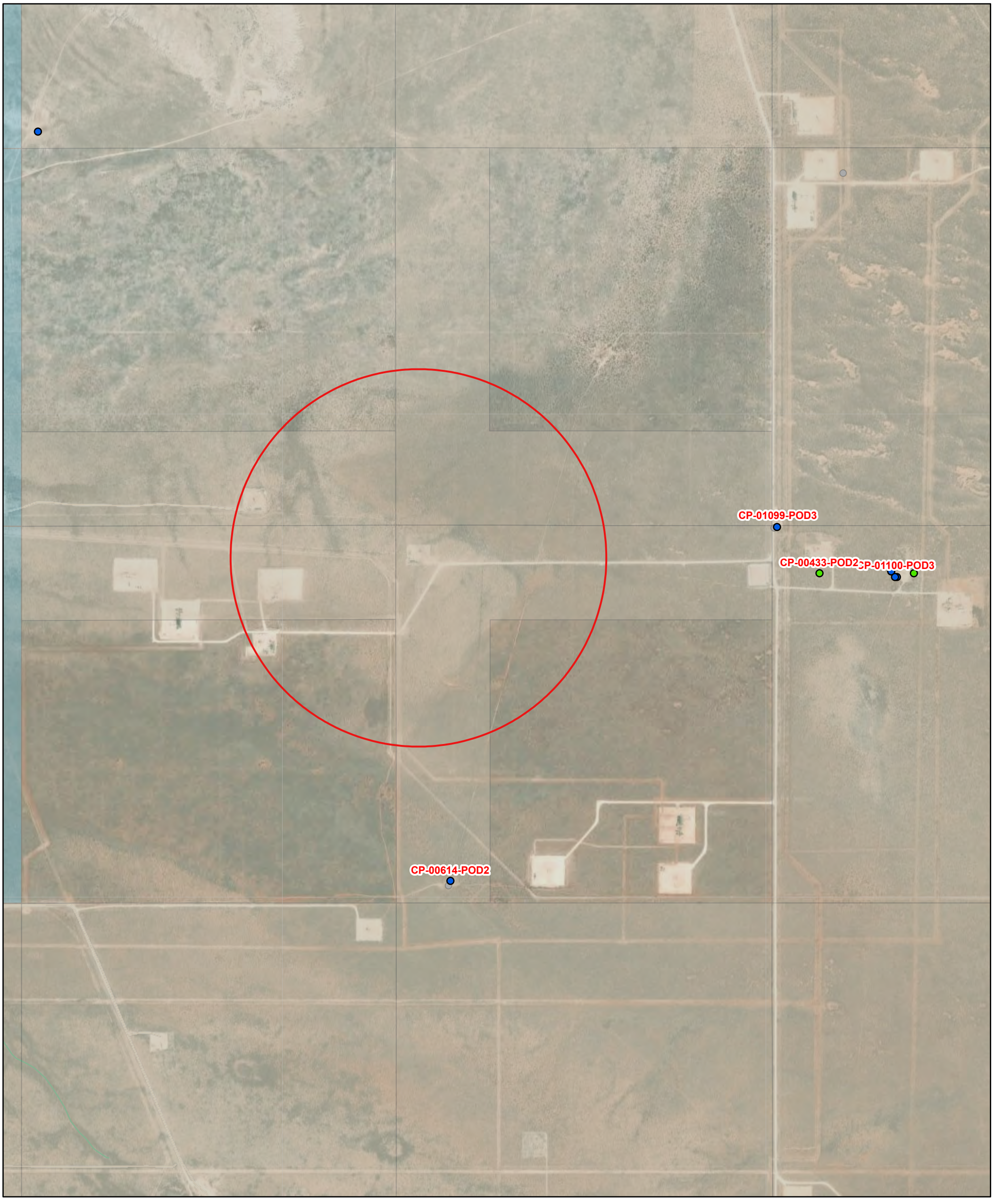
**Record Count:** 10

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

**Easting (X):** 650960 **Northing (Y):** 3572792 **Radius:** 5000

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

# Red Bull 29 Fed #001H




10/11/2023, 2:54:15 PM

Override 1
OSE District Boundary
Both Estates
GIS WATERS PODs
Water Right Regulations
NHD Flowlines
Active
Closure Area
Stream River
Pending
New Mexico State Trust Lands
SiteBoundaries
Inactive
Subsurface Estate

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar



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

# *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 | Twn | Rng | X | Y |
|---|---|---|---|---|---|---|---|---|---|
| 221BF | CP 00614 POD2 | 4 | 3 | 3 | 29 | 23S | 35E | 651102 | 3571401 |

**Driller License:** 1706 **Driller Company:** ELITE DRILLERS CORPORATION

**Driller Name:** WALLACE, BRYCE J.LEE.NER

| | | | | | |
|---|---|---|---|---|---|
| **Drill Start Date:** | 11/20/2018 | **Drill Finish Date:** | 11/23/2018 | **Plug Date:** | |
| **Log File Date:** | 03/01/2019 | **PCW Rcv Date:** | | **Source:** | Shallow |
| **Pump Type:** | | **Pipe Discharge Size:** | | **Estimated Yield:** | 35 GPM |
| **Casing Size:** | 7.60 | **Depth Well:** | 440 feet | **Depth Water:** | 320 feet |

| Water Bearing Stratifications: | Top | Bottom | Description |
|---|---|---|---|
| | 250 | 360 | Sandstone/Gravel/Conglomerate |
| | 360 | 390 | Sandstone/Gravel/Conglomerate |
| | 390 | 420 | Sandstone/Gravel/Conglomerate |

| Casing Perforations: | Top | Bottom |
|---|---|---|
| | 300 | 440 |

| | | | |
|---|---|---|---|
| **Meter Number:** | 18965 | **Meter Make:** | TURBINES INC |
| **Meter Serial Number:** | 2006262 | **Meter Multiplier:** | 1.0000 |
| **Number of Dials:** | 7 | **Meter Type:** | Diversion |
| **Unit of Measure:** | Barrels 42 gal. | **Return Flow Percent:** | |
| **Usage Multiplier:** | | **Reading Frequency:** | Monthly |

**Meter Readings (in Acre-Feet)**

| Read Date | Year | Mtr Reading | Flag | Rdr | Comment | Mtr Amount | Online |
|---|---|---|---|---|---|---|---|
| 01/07/2019 | 2019 | 0 | A | RPT | | 0 | |
| 03/31/2019 | 2019 | 3119 | A | RPT | | 0.402 | |
| 07/01/2019 | 2019 | 59656 | A | RPT | | 7.287 | |
| 08/02/2019 | 2019 | 66066 | A | RPT | | 0.826 | |
| 09/01/2019 | 2019 | 74191 | A | RPT | | 1.047 | |
| 10/07/2019 | 2019 | 84708 | A | RPT | RPT had 840707.966 | 1.356 | |
| 11/04/2019 | 2019 | 93820 | A | RPT | | 1.174 | |
| 12/03/2019 | 2019 | 138145 | A | RPT | | 5.713 | |
| 02/01/2020 | 2020 | 178016 | A | RPT | | 5.139 | |
| 03/02/2020 | 2020 | 207585 | A | RPT | | 3.811 | |
| 04/13/2020 | 2020 | 217794 | A | RPT | Final Meter Read | 1.316 | |
| 04/13/2020 | 2020 | 28729 | A | RPT | initial read for new meter | 0 | |
| 05/04/2020 | 2020 | 36326 | A | RPT | | 0.979 | |
| 06/04/2020 | 2020 | 64019 | A | RPT | | 3.569 | |
| 07/02/2020 | 2020 | 87365 | A | RPT | | 3.009 | |
| 08/03/2020 | 2020 | 116878 | A | RPT | | 3.804 | |
| 10/09/2020 | 2020 | 150197 | A | RPT | | 4.295 | |
| 11/06/2020 | 2020 | 177172 | A | RPT | | 3.477 | |

| | | | | | |
|---|---|---|---|---|---|
| 12/14/2020 | 2020 | 193192 | A | RPT | 2.065 |
| 01/07/2021 | 2020 | 203980 | A | RPT | 1.391 |
| 02/05/2021 | 2021 | 233044 | A | RPT | 3.746 |
| 08/02/2021 | 2021 | 51144 | A | ad | 0 |
| 09/01/2021 | 2021 | 51144 | A | ad | 0 |
| 10/05/2021 | 2021 | 82316 | A | ad | 4.018 |
| 11/04/2021 | 2021 | 97536 | A | ad | 1.962 |
| 12/14/2021 | 2021 | 128306 | A | ad | 3.966 |
| 01/01/2022 | 2022 | 129650 | A | ad | 0.173 |
| 02/08/2022 | 2022 | 129650 | A | ad | 0 |
| 03/02/2022 | 2022 | 129650 | A | ad | 0 |
| 04/01/2022 | 2022 | 129650 | A | ad | 0 |
| 05/10/2022 | 2022 | 129964 | A | ad | 0.040 |
| 06/07/2022 | 2022 | 129964 | A | ad | 0 |
| 09/05/2022 | 2022 | 129964 | A | ad | 0 |
| 10/10/2022 | 2022 | 129964 | A | ad | 0 |
| 11/10/2022 | 2022 | 129964 | A | ad | 0 |
| 05/09/2023 | 2023 | 129964 | A | ad | 0 |
| 06/07/2023 | 2023 | 129964 | A | ad | 0 |

x

| **YTD Meter Amounts: | Year | Amount |
|---|---|---|
| | 2019 | 17.805 |
| | 2020 | 32.855 |
| | 2021 | 13.692 |
| | 2022 | 0.213 |
| | 2023 | 0 |

x

# WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

2018 MAY 1 PM 12:12

### 1. GENERAL AND WELL LOCATION

| OSE POD NO. (WELL NO.) | WELL TAG ID NO. | OSE FILE NO(S). |
|---|---|---|
| CP-614-POD2 | | |

| WELL OWNER NAME(S) | PHONE (OPTIONAL) |
|---|---|
| Limestone Basin Properties Ranch, LLC | 210-835-8057 |

| WELL OWNER MAILING ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 3300 N. A Street, Bldg 1, Ste 220 | Midland | TX | 79705 |

| WELL LOCATION (FROM GPS) | | DEGREES | MINUTES | SECONDS | |
|---|---|---|---|---|---|
| | LATITUDE | 32 | 16 | 09.0 | N |
| | LONGITUDE | 103 | 23 | 44.4 | W |

* ACCURACY REQUIRED: ONE TENTH OF A SECOND

* DATUM REQUIRED: WGS 84

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

### 2. DRILLING & CASING INFORMATION

| LICENSE NO. | NAME OF LICENSED DRILLER | NAME OF WELL DRILLING COMPANY |
|---|---|---|
| WD1706 | Bryce Wallace | Elite Drillers Corporation |

| DRILLING STARTED | DRILLING ENDED | DEPTH OF COMPLETED WELL (FT) | BORE HOLE DEPTH (FT) | DEPTH WATER FIRST ENCOUNTERED (FT) |
|---|---|---|---|---|
| 11/20/18 | 11/23/18 | 440 | 445 | 320 |

COMPLETED WELL IS: [✓] ARTESIAN [ ] DRY HOLE [ ] SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 303

DRILLING FLUID: [ ] AIR [✓] MUD ADDITIVES – SPECIFY:

DRILLING METHOD: [✓] ROTARY [ ] HAMMER [ ] CABLE TOOL [ ] OTHER – SPECIFY:

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM (inches) | CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen) | CASING CONNECTION TYPE (add coupling diameter) | CASING INSIDE DIAM. (inches) | CASING WALL THICKNESS (inches) | SLOT SIZE (inches) |
|---|---|---|---|---|---|---|---|
| 0 | 20 | 20 | ASTM53 GRADE B | | 15.5 | .25 | |
| +2 | 300 | 14.75 | ASTM53 GRADE B | Welded | 8.125 | .25 | |
| 300 | 440 | 14.75 | SDR 17 PVC | Spline | 7.6 | SDR 17 | .031 |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

### 3. ANNULAR MATERIAL

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM. (inches) | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL | AMOUNT (cubic feet) | METHOD OF PLACEMENT |
|---|---|---|---|---|---|
| 0 | 20 | 20 | Portland I/II Cement | 23 | Trimmie |
| 0 | 288 | 14.75 | Portland I/II Cement | 245 | Trimmie |
| 288 | 440 | 14.75 | 8/16 Silica Sand | 120 | Pour |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/17)

| FILE NO. CP-614 | POD NO. | TRN NO. 657220 |
|---|---|---|
| LOCATION | WELL TAG ID NO. | PAGE 1 OF 2 |

**4. HYDROGEOLOGIC LOG OF WELL**

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | THICKNESS (feet) | COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units) | WATER BEARING? (YES / NO) | ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm) |
|---|---|---|---|---|---|
| 0 | 10 | 10 | Caliche | Y ✓ N | |
| 10 | 80 | 70 | Tan & Brown Sandstone | Y ✓ N | |
| 80 | 100 | 20 | Tan Clay | Y ✓ N | |
| 100 | 130 | 30 | Tan Sandstone | Y ✓ N | |
| 130 | 220 | 90 | Tan & Brown Sandstone | Y ✓ N | |
| 220 | 230 | 10 | Tan Clay | Y ✓ N | |
| 230 | 250 | 20 | Red & Tan Sandstone | Y ✓ N | |
| 250 | 360 | 110 | Tan, Brown & Gray Sandstone | ✓ Y N | 10.00 |
| 360 | 390 | 30 | Tan & Red Sandstone | ✓ Y N | 10.00 |
| 390 | 420 | 30 | Tan, Brown & Gray Sandstone | ✓ Y N | 15.00 |
| 420 | 445 | 25 | Red Clay | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☑ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 35.00

**5. TEST; RIG SUPERVISION**

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

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

**6. SIGNATURE**

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Bryce Wallace — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

11/27/18 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

| FILE NO. | POD NO. | TRN NO. | |
|---|---|---|---|
| LOCATION | | WELL TAG ID NO. | PAGE 2 OF 2 |

# WELL RECORD & LOG

## OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

**1. GENERAL AND WELL LOCATION**

| OSE POD NO. (WELL NO.) | WELL TAG ID NO. | OSE FILE NO(S) |
|---|---|---|
| CP-1099-POD3 | ID 20D16 | |

| WELL OWNER NAME(S) | PHONE (OPTIONAL) |
|---|---|
| LIMESTONE BASIN PROPERTIES RANCH, LLC | |

| WELL OWNER MAILING ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|
| 3300 N A STREET, BLDG 1, STE 220 | MIDLAND | TX | 79705 |

| WELL LOCATION (FROM GPS) | DEGREES | MINUTES | SECONDS | |
|---|---|---|---|---|
| LATITUDE | 32 | 16 | 58.03 | N |
| LONGITUDE | 103 | 22 | 50.93 | W |

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

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

**2. DRILLING & CASING INFORMATION**

| LICENSE NO. | NAME OF LICENSED DRILLER | NAME OF WELL DRILLING COMPANY |
|---|---|---|
| WD1706 | Bryce Wallace | Elite Drillers Corporation |

| DRILLING STARTED | DRILLING ENDED | DEPTH OF COMPLETED WELL (FT) | BORE HOLE DEPTH (FT) | DEPTH WATER FIRST ENCOUNTERED (FT) |
|---|---|---|---|---|
| 09/14/20 | 11/02/20 | 930 | 930 | 725 |

COMPLETED WELL IS: [✓] ARTESIAN [ ] DRY HOLE [ ] SHALLOW (UNCONFINED) — STATIC WATER LEVEL IN COMPLETED WELL (FT): 282

DRILLING FLUID: [ ] AIR [✓] MUD ADDITIVES – SPECIFY:

DRILLING METHOD: [✓] ROTARY [ ] HAMMER [ ] CABLE TOOL [ ] OTHER – SPECIFY:

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM (inches) | CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen) | CASING CONNECTION TYPE (add coupling diameter) | CASING INSIDE DIAM. (inches) | CASING WALL THICKNESS (inches) | SLOT SIZE (inches) |
|---|---|---|---|---|---|---|---|
| 0 | 666 | 17.5 | J55 - 48# | T/C | 12.615 | .38 | |
| 640 | 930 | 12.25 | J55 | T/C | 7.875 | .38 | 0.1 |
| | | | | | | | |
| | | | | | | | |
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| | | | | | | | |

**3. ANNULAR MATERIAL**

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | BORE HOLE DIAM. (inches) | LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL | AMOUNT (cubic feet) | METHOD OF PLACEMENT |
|---|---|---|---|---|---|
| 0 | 666 | 17.5 | CLASS C | 1021 | Pressure Grout |
| 640 | 930 | 12.25 | 3/8 PEA GRAVEL | 150 | Pour |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06.30.17)

| FILE NO. CP-1099 | POD NO. 3 | TRN NO. 678293 | |
|---|---|---|---|
| LOCATION 23S.35E.28.111 | | WELL TAG ID NO. 20D16 | PAGE 1 OF 2 |

**4. HYDROGEOLOGIC LOG OF WELL**

| DEPTH (feet bgl) FROM | DEPTH (feet bgl) TO | THICKNESS (feet) | COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)** | WATER BEARING? (YES / NO) | ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm) |
|---|---|---|---|---|---|
| 0 | 60 | 60 | SANDY CALICHE | Y ✓ N | |
| 60 | 440 | 380 | RED/BROWN/GREENISH GRAY CLAY | Y ✓ N | |
| 440 | 645 | 205 | GRAY/RED/BROWN CLAY | Y ✓ N | |
| 645 | 710 | 65 | GRAY/RED/TAN SANDSTONE | Y ✓ N | |
| 710 | 750 | 40 | YELLOW/RED STANDSTONE | ✓ Y N | 25.00 |
| 750 | 905 | 155 | TAN/RED/GRAY SANDSTONE | ✓ Y N | 25.00 |
| 905 | 930 | 25 | RED SILTSTONE/RED CLAY | Y ✓ N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |
| | | | | Y N | |

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☑ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 50.00

**5. TEST; RIG SUPERVISION**

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

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

**6. SIGNATURE**

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Bryce Wallace — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

11/08/20 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

| FILE NO. CP-1099 | POD NO. 3 | TRN NO. 678293 |
|---|---|---|
| LOCATION | WELL TAG ID NO. | PAGE 2 OF 2 |

U.S. Fish and Wildlife Service
National Wetlands Inventory

# 02 - Watercourse - Red Bull 29 Fed 1H
8,569 feet away (1.62 miles)


July 19, 2023

**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.

U.S. Fish and Wildlife Service
National Wetlands Inventory

# 03 - Lakebed - Red Bull 29 Fed 1H
9,213 feet away (1.74 miles)

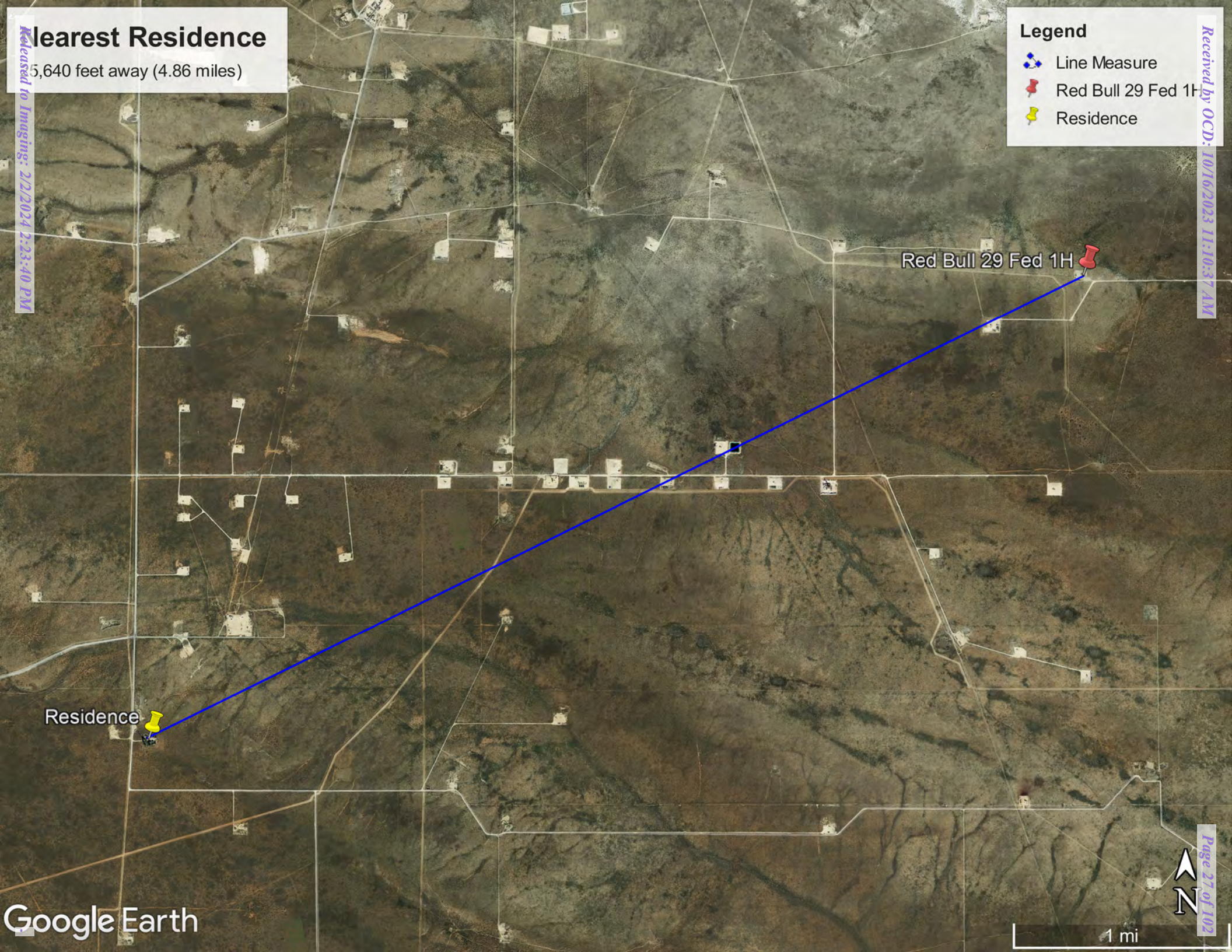

July 19, 2023

**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



*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 me

| WR File Nbr | Sub basin | Use | Diversion | Owner | County | POD Number | Well Tag | Code | Grant | Source | q | q | q | Sec | Twn | Rng | X | Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 00614 | CP | COM | 80 | LIMESTONE BASIN PROPERTIES | LE | CP 00614 POD2 | 221BF | | | Shallow | 4 | 3 | 3 | 29 | 23S | 35E | 651102 | 3571401 |
| | | | | | LE | CP 00614 POD1 | | | | Shallow | 4 | 3 | 3 | 29 | 23S | 35E | 651091 | 3571382 |
| CP 01099 | CP | COM | 80 | LIMESTONE BASIN PROPERTIES | LE | CP 01099 POD1 | | | | | 1 | 1 | 1 | 28 | 23S | 35E | 652466 | 3572927 |
| | | | | | LE | CP 01099 POD3 | NA | | | Artesian | 1 | 1 | 1 | 28 | 23S | 35E | 652478 | 3572932 |
| CP 00433 | CP | AGR | 0 | LBM CATTLE COMPANY, INC. | LE | CP 00433 POD2 | | | | | | 1 | 1 | 28 | 23S | 35E | 652662 | 3572736* |
| CP 01099 | CP | COM | 80 | LIMESTONE BASIN PROPERTIES | LE | CP 01099 POD2 | 221C0 | | | Shallow | 3 | 3 | 3 | 21 | 23S | 35E | 652968 | 3572750 |
| CP 01100 | CP | COM | 80 | LIMESTONE BASIN PROPERTIES | LE | CP 01100 POD1 | | | | | 1 | 2 | 1 | 28 | 23S | 35E | 652968 | 3572750 |
| | | | | | LE | CP 01100 POD3 | NA | | | Artesian | 3 | 2 | 1 | 28 | 23S | 35E | 652987 | 3572726 |
| | | | | | LE | CP 01100 POD2 | 221C1 | | | Artesian | | 2 | 1 | 28 | 23S | 35E | 652995 | 3572726 |
| CP 00433 | CP | AGR | 0 | LBM CATTLE COMPANY, INC. | LE | CP 00433 POD1 | | | | | | 2 | 1 | 28 | 23S | 35E | 653065 | 3572743* |
| CP 00616 | CP | PRO | 0 | J.C. MILLS | LE | CP 00616 | | | | | 2 | 1 | 1 | 21 | 23S | 35E | 652737 | 3574445* |
| CP 01830 | CP | COM | 100 | LIMESTONE BASIN PROP RANCH LLC | LE | CP 01830 POD1 | 211F8 | | | Shallow | 3 | 3 | 3 | 18 | 23S | 35E | 649288 | 3574568 |
| CP 01758 | CP | EXP | 0 | LIMESTONE BASIN PROPERTIES | LE | CP 01758 POD1 | NA | | | | 1 | 2 | 3 | 18 | 23S | 35E | 649680 | 3575267 |
| CP 00612 | CP | PRO | 0 | J.C. MILLS | LE | CP 00612 | | | | | 4 | 4 | 1 | 18 | 23S | 35E | 649900 | 3575408* |
| CP 01708 | CP | EXP | 0 | ATKINS ENGR ASSOC INC | LE | CP 01708 POD1 | NA | | | | | 2 | 1 | 36 | 23S | 34E | 648262 | 3571205 |
| CP 01709 | CP | COM | 200 | LIMESTONE BASIN PROPERTIES | LE | CP 01708 POD1 | NA | | | | | 2 | 1 | 36 | 23S | 34E | 648262 | 3571205 |
| CP 01838 | CP | COM | 100 | LIMESTONE BASIN PROP RANCH LLC | LE | CP 01838 POD1 | 211EA | | | | | 3 | 3 | 3 | 07 | 23S | 35E | 649294 | 3576148 |
| CP 01197 | CP | COM | 0 | GENERAL COUNSEL OFFICE | LE | CP 01197 POD1 | | | | | | 1 | 3 | 06 | 24S | 35E | 649528 | 3568790 |
| CP 00580 | CP | PRO | 0 | NATOMAS NORTH AMERICA INC | LE | CP 00580 | | | | Shallow | 3 | 4 | 3 | 23 | 23S | 34E | 646524 | 3572948* |
| CP 00606 | CP | PRO | 0 | NATOMAS NORTH AMERCIA INC. | LE | CP 00606 | | | | Shallow | | 4 | 1 | 23 | 23S | 34E | 646613 | 3573854* |
| CP 00499 | CP | STK | 3 | HUGH WARD | LE | CP 00499 | | | | | | 3 | 3 | 23 | 23S | 35E | 655875 | 3573194* |
| CP 01120 | CP | STK | 3 | LIMESTONE BASIN PROPERTIES | LE | CP 01120 POD1 | NA | | | Shallow | 2 | 3 | 3 | 14 | 23S | 34E | 646366 | 3574753 |
| CP 01729 | CP | COM | 200 | LIMESTONE BASIN PROPERTIES | LE | CP 01120 POD1 | NA | | | Shallow | 2 | 3 | 3 | 14 | 23S | 34E | 646366 | 3574753 |

**Record Count:** 23

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

**Easting (X):** 650960 **Northing (Y):** 3572792 **Radius:** 5000

**Sorted by:** Distance

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

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

get image list

**WR File Number:** CP 00433 **Subbasin:** CP **Cross Reference:** -

**Primary Purpose:** AGR AGRICULTURE OTHER THAN IRRIGATION

**Primary Status:** CAN CANCELLED

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

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

**Owner:** LBM CATTLE COMPANY, INC.

## Documents on File

| Trn # | Doc | File/Act | Status 1 | Status 2 | Transaction Desc. | From/ To | Acres | Diversion | Consumptive |
|---|---|---|---|---|---|---|---|---|---|
| get images 591830 | APPRO | 1967-07-26 | CAN | FIN | CP 00433 | T | 0 | 0 | |

## Current Points of Diversion

(NAD83 UTM in meters)

| POD Number | Well Tag | Source | Q 64 | Q16 | Q4 | Sec | Tws | Rng | X | Y | Other Location Desc |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CP 00433 POD1 | | | 2 | 1 | | 28 | 23S | 35E | 653065 | 3572743* | |
| CP 00433 POD2 | | | 1 | 1 | | 28 | 23S | 35E | 652662 | 3572736* | |

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

## Priority Summary

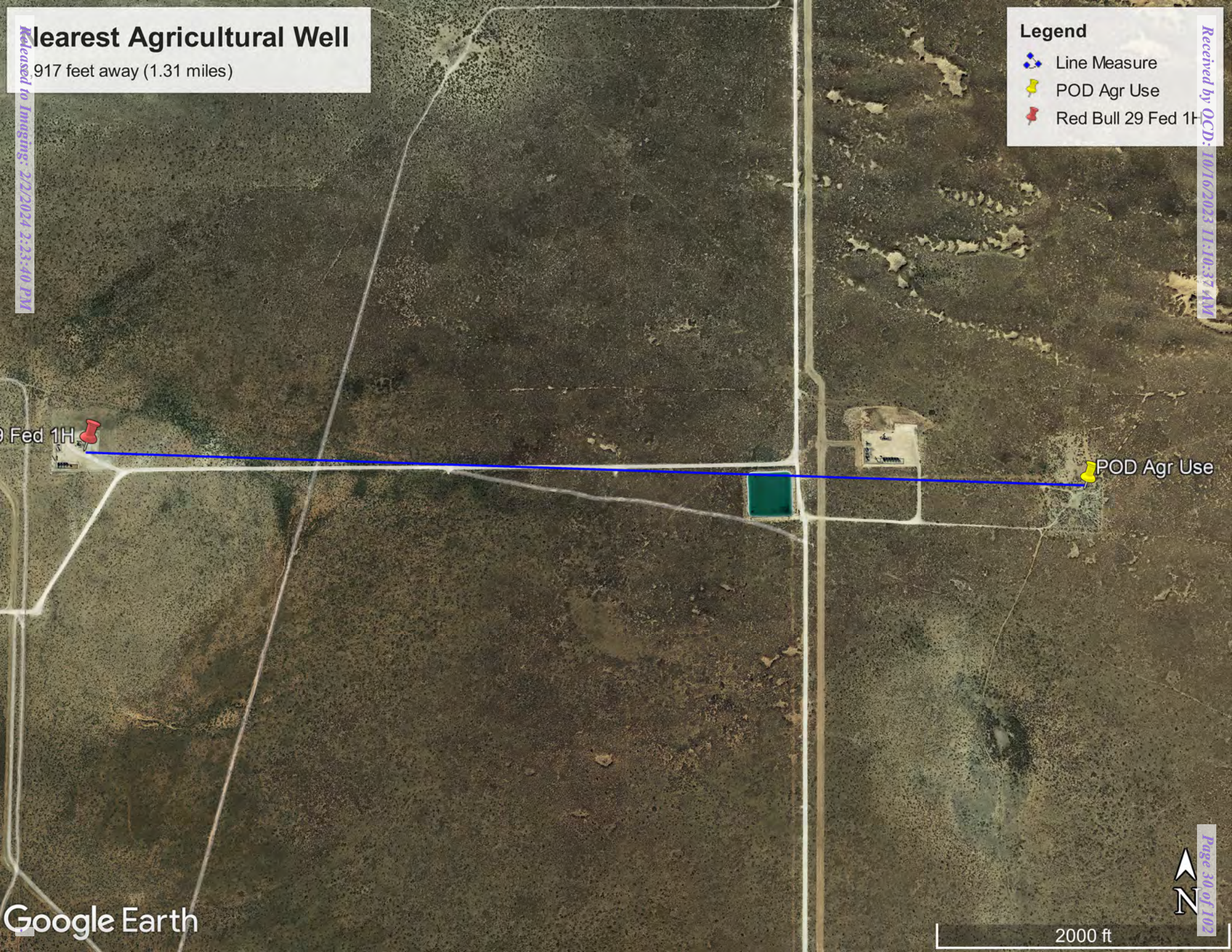
| Priority | Status | Acres | Diversion | Pod Number |
|---|---|---|---|---|
| 04/26/1967 | CAN | 0 | 0 | CP 00433 POD1 |
| | | | | CP 00433 POD2 |

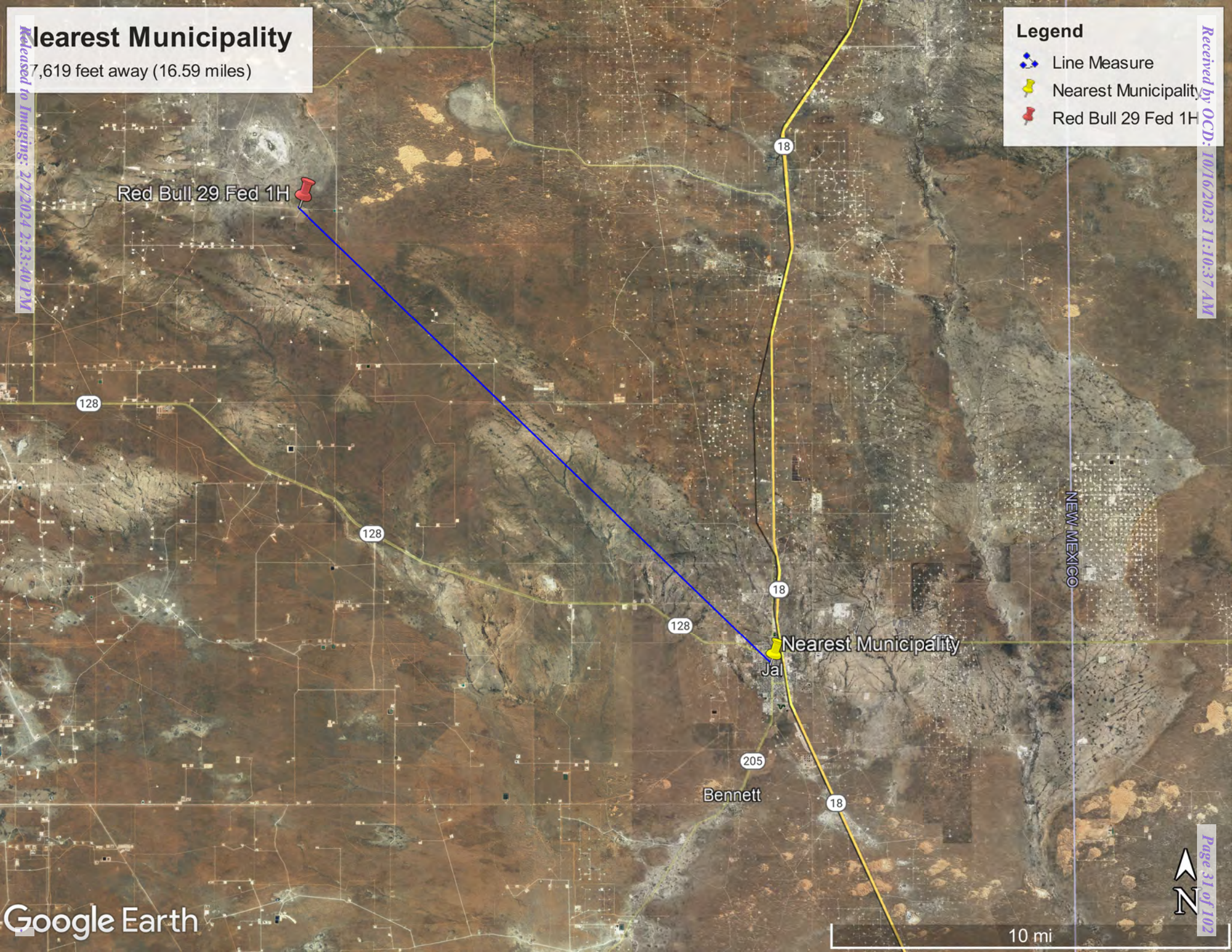
## Place of Use

| Q 256 | Q 64 | Q16 | Q4 | Sec | Tws | Rng | Acres | Diversion | CU | Use | Priority | Status | Other Location Desc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1 | | 28 | 23S | 35E | 0 | 0 | | AGR | 04/26/1967 | CAN | |

## Source

| Acres | Diversion | CU | Use | Priority | Source | Description |
|---|---|---|---|---|---|---|
| 0 | 0 | | AGR | 04/26/1967 | GW | |





U.S. Fish and Wildlife Service

National Wetlands Inventory

# 07 - Wetland - Red Bull 29 Fed 1H
## 7,547 feet away (1.43 miles)


July 19, 2023

**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.

# 08 - Mines - Red Bull 29 Fed 1H


7/19/2023, 11:18:44 AM

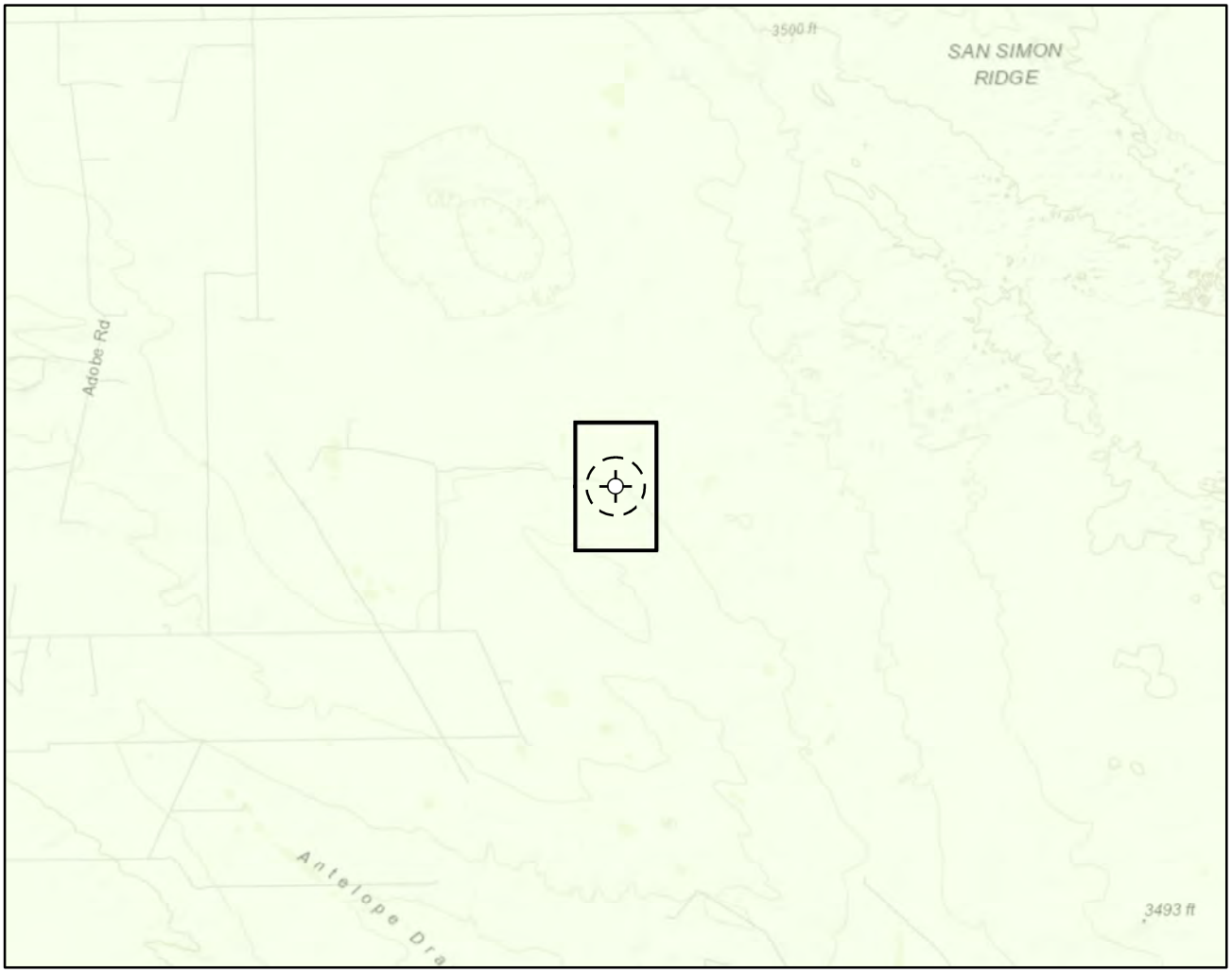
1:36,112

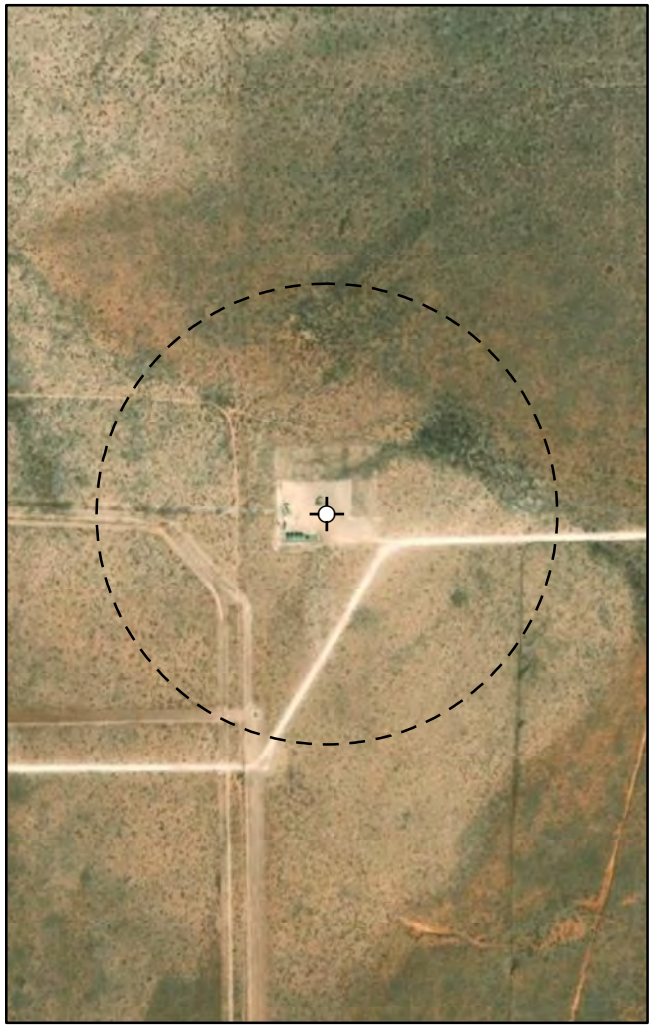
0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Registered Mines

Aggregate, Stone etc.



**Karst Potential**

- Critical
- High
- Medium
- Low

Site Location

Site Buffer (1,000 ft.)

**Overview Map**

0 0.25 0.5 1 mi

**Detail Map**

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.281725, -103.396954

NAD 1983 UTM Zone 13N
Date: Jul 20/23

N

**Karst Potential Map**
**Red Bull 29 Fed 1H**

FIGURE:
**X**

devon

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

Note: Inset Map, ESRI 2022; Overview Map: ESRI World Topographic. Karst potential data 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\2023\23E-04311 - Red Bull 29 Fed 1H\Figure X Karst Potential Map (23E-04311).mxd

# National Flood Hazard Layer FIRMette

FEMA

103°24'8"W 32°17'9"N


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

1:6,000

103°23'30"W 32°16'39"N

Basemap Imagery Source: USGS National Map 2023

## Legend

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

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, 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 / 17.5 Cross Sections with 1% Annual Chance / 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 7/19/2023 at 1:28 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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 Lea County, New Mexico


July 19, 2023

# Preface

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

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

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

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

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

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

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# How Soil Surveys Are Made

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

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

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

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

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

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.

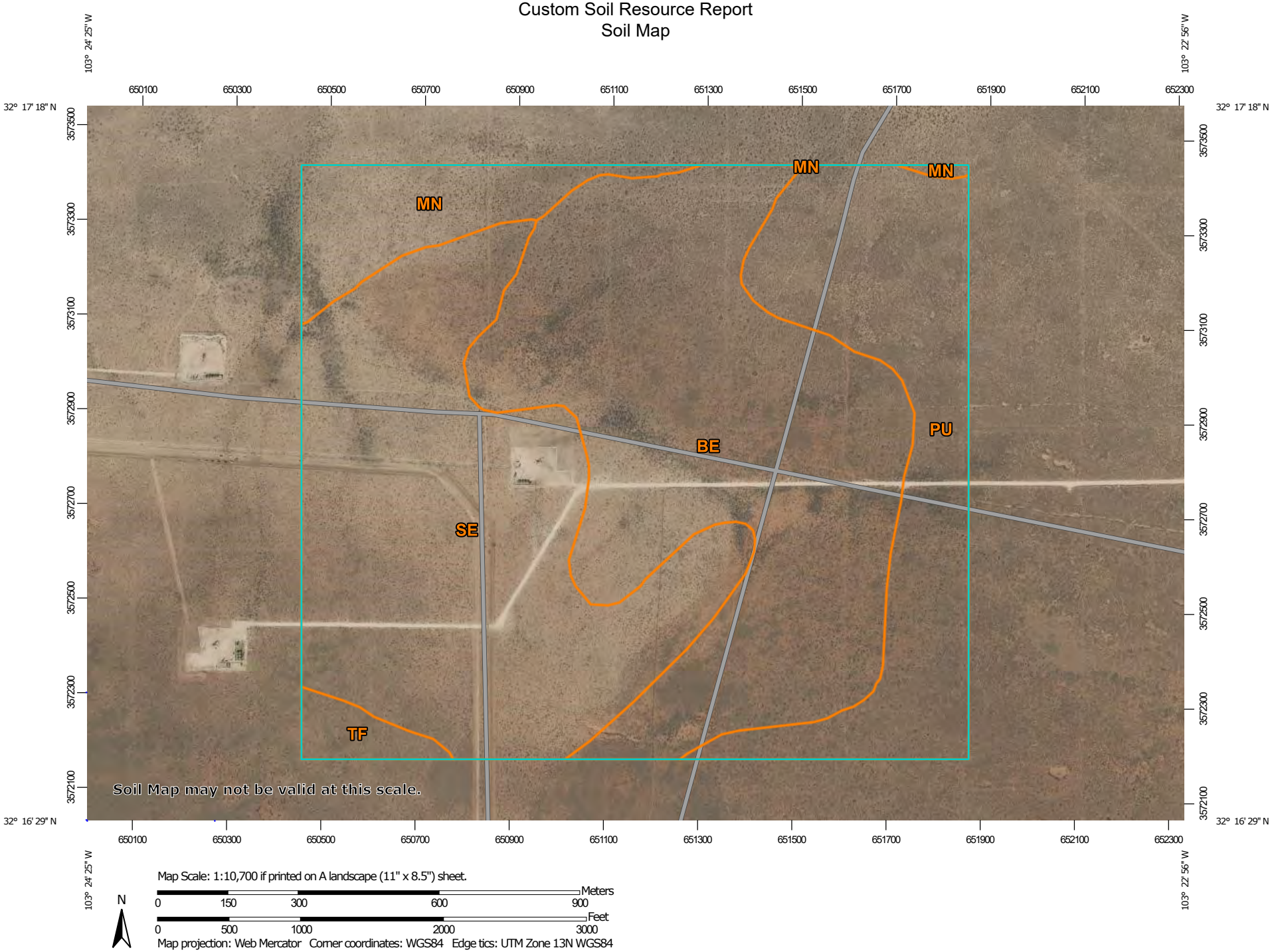
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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: Lea County, New Mexico
Survey Area Data: Version 19, Sep 8, 2022

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

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

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

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| BE | Berino-Cacique loamy fine sands association | 171.7 | 38.9% |
| MN | Ratliff-Wink fine sandy loams | 28.4 | 6.4% |
| PU | Pyote and Maljamar fine sands | 81.9 | 18.6% |
| SE | Simona fine sandy loam, 0 to 3 percent slopes | 152.0 | 34.5% |
| TF | Tonuco loamy fine sand, 0 to 3 percent slopes | 7.1 | 1.6% |
| **Totals for Area of Interest** | | **441.0** | **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.

# Lea County, New Mexico

## BE—Berino-Cacique loamy fine sands association

### Map Unit Setting

*National map unit symbol:* dmpd
*Elevation:* 3,000 to 3,900 feet
*Mean annual precipitation:* 10 to 13 inches
*Mean annual air temperature:* 60 to 62 degrees F
*Frost-free period:* 190 to 205 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Berino and similar soils:* 50 percent
*Cacique and similar soils:* 40 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Berino

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Sandy eolian deposits derived from sedimentary rock over calcareous sandy alluvium derived from sedimentary rock

#### Typical profile

*A - 0 to 6 inches:* loamy fine sand
*Btk - 6 to 60 inches:* sandy clay loam

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 40 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Moderate (about 8.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7c
*Hydrologic Soil Group:* B
*Ecological site:* R070BD003NM - Loamy Sand
*Hydric soil rating:* No

### Description of Cacique

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Calcareous eolian deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 12 inches:* loamy fine sand
*Bt - 12 to 28 inches:* sandy clay loam
*Bkm - 28 to 38 inches:* cemented material

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* 20 to 40 inches to petrocalcic
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7c
*Hydrologic Soil Group:* C
*Ecological site:* R070BD004NM - Sandy
*Hydric soil rating:* No

### Minor Components

#### Maljamar

*Percent of map unit:* 6 percent
*Ecological site:* R077CY028TX - Limy Upland 16-21" PZ
*Hydric soil rating:* No

#### Palomas

*Percent of map unit:* 4 percent
*Ecological site:* R070BD003NM - Loamy Sand
*Hydric soil rating:* No

## MN—Ratliff-Wink fine sandy loams

### Map Unit Setting

*National map unit symbol:* dmqf
*Elevation:* 3,000 to 3,900 feet
*Mean annual precipitation:* 10 to 15 inches
*Mean annual air temperature:* 60 to 62 degrees F
*Frost-free period:* 190 to 205 days
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Ratliff and similar soils:* 45 percent
*Wink and similar soils:* 40 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Ratliff

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Dip
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Calcareous alluvium and/or calcareous eolian deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 4 inches:* fine sandy loam
*Bw - 4 to 22 inches:* clay loam
*Bk - 22 to 60 inches:* clay loam

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 50 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Moderate (about 8.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 4e

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

### Description of Wink

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Dip
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Calcareous sandy alluvium and/or calcareous sandy eolian deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 12 inches:* fine sandy loam
*Bk - 12 to 23 inches:* sandy loam
*BCk - 23 to 60 inches:* sandy loam

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Very low
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 30 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Low (about 4.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* A
*Ecological site:* R070BD004NM - Sandy
*Hydric soil rating:* No

### Minor Components

#### Kermit

*Percent of map unit:* 6 percent
*Ecological site:* R070BC022NM - Sandhills
*Hydric soil rating:* No

#### Maljamar

*Percent of map unit:* 5 percent
*Ecological site:* R070BD003NM - Loamy Sand
*Hydric soil rating:* No

#### Palomas

*Percent of map unit:* 4 percent
*Ecological site:* R070BD003NM - Loamy Sand

*Hydric soil rating:* No

## PU—Pyote and Maljamar fine sands

### Map Unit Setting

*National map unit symbol:* dmqq
*Elevation:* 3,000 to 3,900 feet
*Mean annual precipitation:* 10 to 12 inches
*Mean annual air temperature:* 60 to 62 degrees F
*Frost-free period:* 190 to 205 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Pyote and similar soils:* 46 percent
*Maljamar and similar soils:* 44 percent
*Minor components:* 10 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Pyote

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Sandy eolian deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 30 inches:* fine sand
*Bt - 30 to 60 inches:* fine sandy loam

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Runoff class:* Negligible
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* A
*Ecological site:* R070BD003NM - Loamy Sand
*Hydric soil rating:* No

### Description of Maljamar

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Sandy eolian deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 24 inches:* fine sand
*Bt - 24 to 50 inches:* sandy clay loam
*Bkm - 50 to 60 inches:* cemented material

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* 40 to 60 inches to petrocalcic
*Drainage class:* Well drained
*Runoff class:* Very low
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Low (about 5.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* B
*Ecological site:* R070BD003NM - Loamy Sand
*Hydric soil rating:* No

### Minor Components

#### Kermit

*Percent of map unit:* 10 percent
*Ecological site:* R070BC022NM - Sandhills
*Hydric soil rating:* No

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

### Map Unit Setting

*National map unit symbol:* dmr2
*Elevation:* 3,000 to 4,200 feet
*Mean annual precipitation:* 10 to 15 inches
*Mean annual air temperature:* 58 to 62 degrees F
*Frost-free period:* 190 to 205 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Simona and similar soils:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Simona

#### Setting

*Landform:* Plains
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Calcareous eolian deposits derived from sedimentary rock

#### Typical profile

*A - 0 to 8 inches:* fine sandy loam
*Bk - 8 to 16 inches:* gravelly fine sandy loam
*Bkm - 16 to 26 inches:* cemented material

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* 7 to 20 inches to petrocalcic
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 35 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Very low (about 2.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6s
*Land capability classification (nonirrigated):* 7s
*Hydrologic Soil Group:* D

*Ecological site:* R070BD002NM - Shallow Sandy
*Hydric soil rating:* No

**Minor Components**

**Kimbrough**
*Percent of map unit:* 8 percent
*Ecological site:* R077CY037TX - Very Shallow 16-21" PZ
*Hydric soil rating:* No

**Lea**
*Percent of map unit:* 7 percent
*Ecological site:* R077CY028TX - Limy Upland 16-21" PZ
*Hydric soil rating:* No

## TF—Tonuco loamy fine sand, 0 to 3 percent slopes

**Map Unit Setting**
*National map unit symbol:* 2tw3c
*Elevation:* 3,280 to 4,460 feet
*Mean annual precipitation:* 10 to 16 inches
*Mean annual air temperature:* 59 to 64 degrees F
*Frost-free period:* 180 to 220 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Tonuco and similar soils:* 70 percent
*Minor components:* 30 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tonuco**

**Setting**
*Landform:* Ridges, plains
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Parent material:* Sandy eolian deposits

**Typical profile**
*A - 0 to 12 inches:* loamy fine sand
*Bw - 12 to 17 inches:* loamy sand
*Bkkm - 17 to 39 inches:* cemented material

**Properties and qualities**
*Slope:* 0 to 3 percent
*Depth to restrictive feature:* 12 to 20 inches to petrocalcic
*Drainage class:* Excessively drained
*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 2 percent
*Gypsum, maximum content:* 1 percent
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Sodium adsorption ratio, maximum:* 2.0
*Available water supply, 0 to 60 inches:* Very low (about 1.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R077DY048TX - Shallow 12-17" PZ
*Hydric soil rating:* No

## Minor Components

### Simona

*Percent of map unit:* 15 percent
*Landform:* Ridges, plains
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Ecological site:* R070BD002NM - Shallow Sandy
*Hydric soil rating:* No

### Berino

*Percent of map unit:* 10 percent
*Landform:* Ridges, plains
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Ecological site:* R070BD003NM - Loamy Sand
*Hydric soil rating:* No

### Cacique

*Percent of map unit:* 5 percent
*Landform:* Ridges, plains
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Rise
*Down-slope shape:* Convex, linear
*Across-slope shape:* Linear
*Ecological site:* R070BD004NM - Sandy
*Hydric soil rating:* No

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USDA Natural Resources Conservation Service

# Ecological site R070BD002NM
# Shallow Sandy

Accessed: 10/02/2023

## General information

**Provisional**. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

**Figure 1. Mapped extent**

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

## Associated sites

| | |
|---|---|
| R070BD004NM | **Sandy**<br>Sandy sites often occur in association or in a complex with Shallow Sandy Sites. |

## Similar sites

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

**Table 1. Dominant plant species**

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

## Physiographic features

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

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

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Plain<br>(2) Fan piedmont<br>(3) Alluvial fan |
| Elevation | 2,842–4,500 ft |
| Slope | 1–9% |
| Aspect | Aspect is not a significant factor |

## Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common.

Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is from 207 to 220 days. The last killing frost is in late March or early April, and the first killing frost is in late October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of the site. The vegetation of this site can take advantage of the moisture and the time it falls. Because of the soil profile, little moisture can be stored in the soil for any length of time. Moisture is readily available to the plants from the time it falls. Strong winds from the southwest blow from January through June which rapidly dries out the soil profile during a critical period for plant growth.

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

**Table 3. Representative climatic features**

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

## Influencing water features

This site is not influenced from water from wetlands or streams.

## Soil features

Soils are very shallow to shallow, less than 20 inches in depth. Surface and subsurface textures are gravelly loamy sand, gravelly fine sandy loam or fine sandy loam.

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

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

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

Characteristic soils are:
Simona
Jerag

**Table 4. Representative soil features**

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

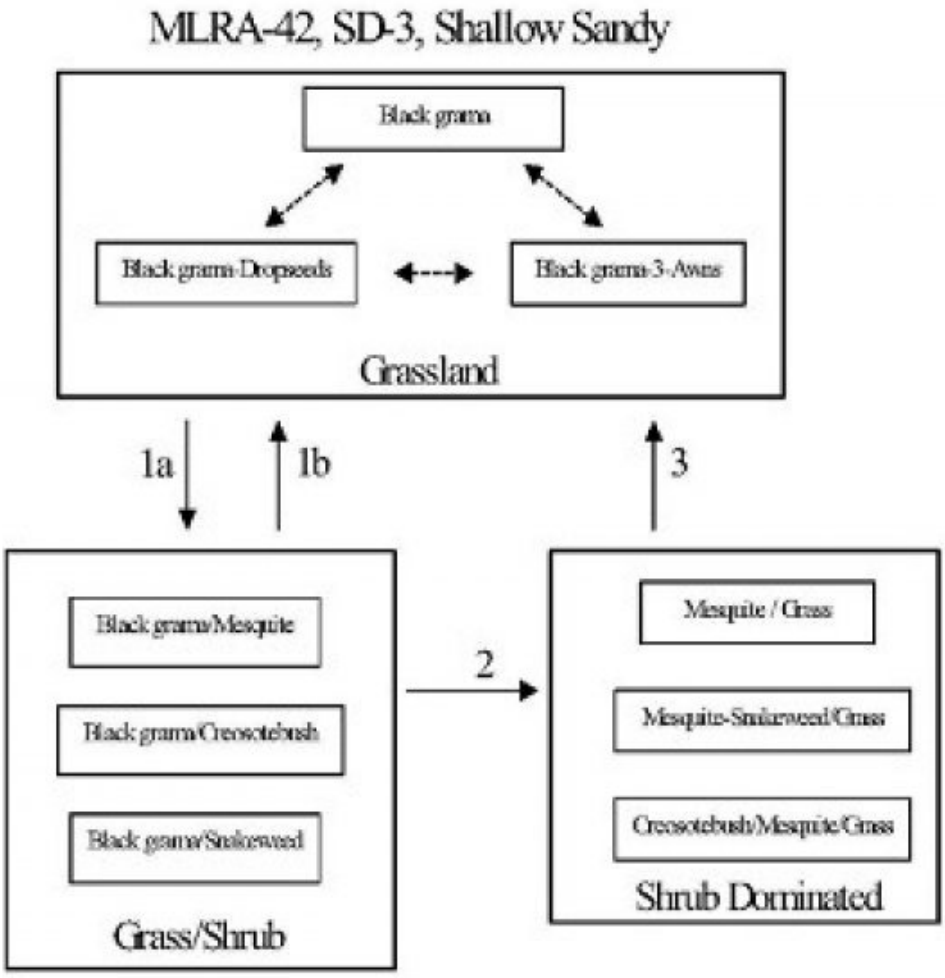
| | |
|---|---|
| Soil depth | 7–24 in |
| Surface fragment cover <=3" | 5–25% |
| Surface fragment cover >3" | 0% |
| Available water capacity (0-40in) | 1–2 in |
| Calcium carbonate equivalent (0-40in) | 5–15% |
| Electrical conductivity (0-40in) | 0–4 mmhos/cm |
| Sodium adsorption ratio (0-40in)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

## Ecological dynamics

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

## State and transition model

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




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

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

3. Brush control, range seeding, prescribed grazing.

## State 1
## Historic Climax Plant Community

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

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

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

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

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

**Table 6. Ground cover**

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

**Figure 5. Plant community growth curve (percent production by month). NM2802, R042XC002NM-Shallow Sandy-HCPC. SD-3 Shallow Sandy - Warm season plant community.**

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

## State 2
## Grass/Shrub

## Community 2.1
## Grass/Shrub

Grass/Shrub: This state is characterized by the notable presence of shrubs, especially mesquite, broom snakeweed, and/or creosotebush, however grasses remain as the dominant species. Black grama is the dominant

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

## State 3
## Shrub Dominated

### Community 3.1
### Shrub Dominated

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

## Additional community tables

**Table 7. Community 1.1 plant community composition**

| Group | Common Name | Symbol | Scientific Name | Annual Production (Lb/Acre) | Foliar Cover (%) |
|---|---|---|---|---|---|
| **Grass/Grasslike** | | | | | |
| 1 | **Warm Season** | | | 413–495 | |
| | black grama | BOER4 | *Bouteloua eriopoda* | 413–495 | – |
| 2 | **Warm Season** | | | 41–83 | |
| | bush muhly | MUPO2 | *Muhlenbergia porteri* | 41–83 | – |
| 3 | **Warm Season** | | | 41–83 | |

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

## Animal community

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

## Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations
Soil Series Hydrologic Group
Jarag D
Simona D

## Recreational uses

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

## Wood products

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

## Other products

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. Because of the sandy textures and shallow profile, this site will respond rapidly to management. As this site deteriorates, plants such as black grama, bush muhly, blue and sideoats grama, plains bristlegrass and Arizona cottontop, will decrease and be replaced by plants such as threeawns, mesquite, creosote bush, and broom snakeweed. This also causes a decrease in ground cover, leaving the soil to blow. This site responds best to a system of management that rotates the season of use.

## Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.5 – 3.5
75 – 51 3.2 – 4.6
50 – 26 4.5 – 7.5
25 – 0 7.6 +

## Inventory data references

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

## Other references

Literature References:

1. Brooks, M.L. and D.A. Pyke. 2001. Invasive plants and fire in the deserts of North America. Pages 1–14 in K.E.M. Galley and T.P. Wilson (eds.). Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species.

2. Hennessy, J.T., R.P. Gibbens, J.M. Tromble, and M. Cardenas. 1983. Water properties of caliche. J. Range Manage. 36: 723-726.

3. Humphrey, R.R. 1974. Fire in the deserts and desert grassland of North America. In: Kozlowski, T. T.; Ahlgren, C. E., eds. Fire and ecosystems. New York: Academic Press: 365-400.

4. Moir, W.H., and J. A. Ludwig. 1991. Plant succession and changing land features in desert grasslands. P. 15-18. In P.F. Ffolliott and W.T. Swank (eds.) People and the temperate region: a summary of research from the United States Man and the Biosphere Program 1991. U.S. Dept. State, Publ No. 9839, Nat. Tech. Info. Serv., U.S. Dept. Commerce, Springfield, Illinois. 63 p.

5. Tiedemann, A. R. and J. O. Klemmedson. 1977. Effect of mesquite trees on vegetation and soils in the desert grassland. J. Range Manage. 30: 361-367.

6. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, September). Fire Effects Information System, [Online]. Available: http://www.fs.fed.us/database/feis/ [accessed 2/10/03].

7. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheets. Rangeland Soil Quality—Wind Erosion. Rangeland Sheet 10 [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

8. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheets. Rangeland Soil Quality—Physical and Biological Soil Crusts. Rangeland Sheet 7 [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

## Contributors

David Trujillo
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.

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

## Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

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

5. **Number of gullies and erosion associated with gullies:**

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

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

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

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

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

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

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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

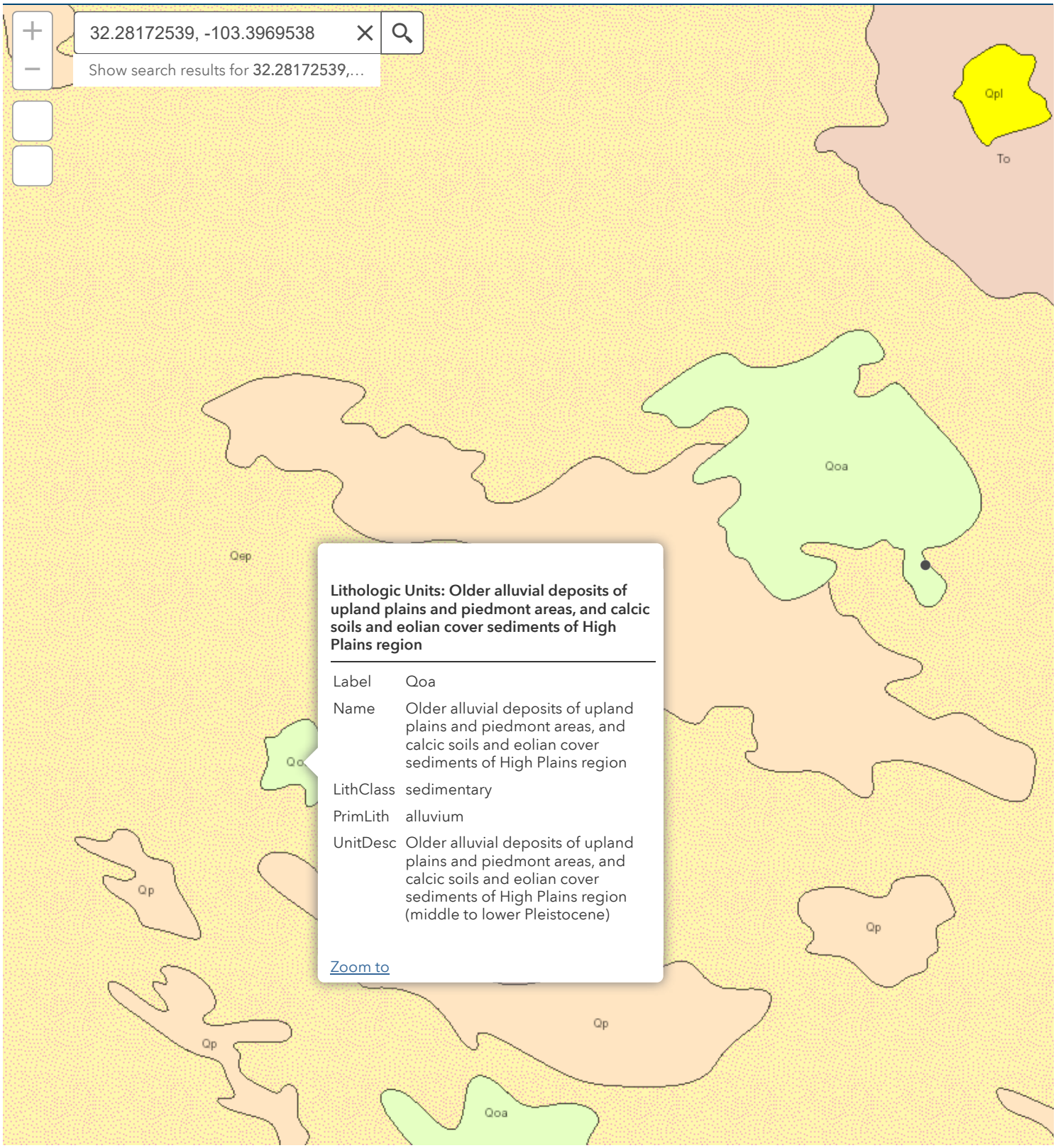
14. **Average percent litter cover (%) and depth ( in):**

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

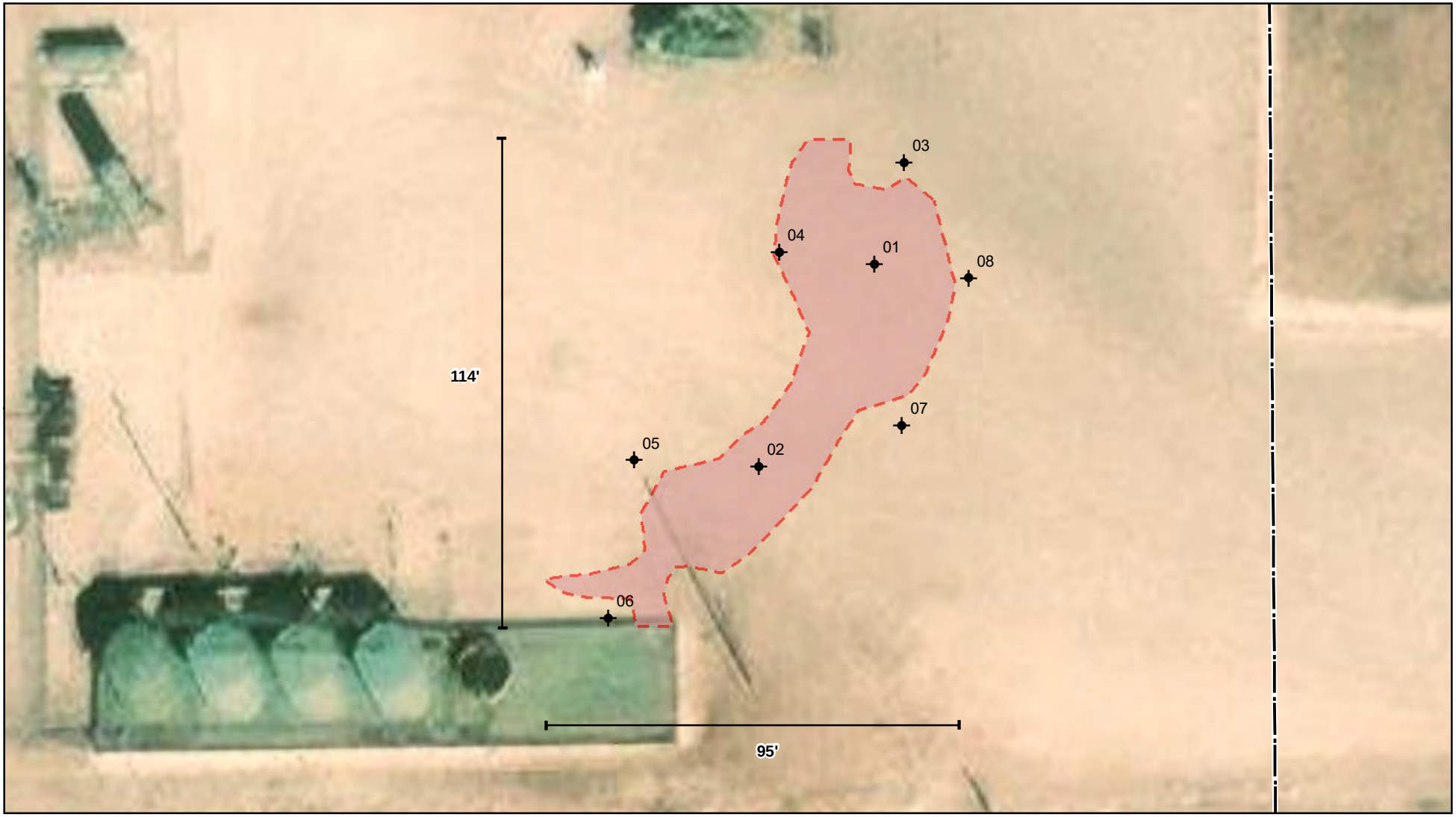
16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management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

17. **Perennial plant reproductive capability:**

# NMBGMR Interactive Resources Map



# ATTACHMENT 3




Borehole (Prefixed by "BH23-")  Approximate Lease Boundary  Approximate Release Area (3,205 sq. ft.)

VERTEX

0 10 20 40 ft

Map Center:
Lat/Long: 32.281605, -103.397053

NAD 1983 UTM Zone 13N
Date: Oct 04/23

N

**Characterization Sampling Site Schematic**
**Red Bull 29 Fed #001H**

FIGURE:
1

devon

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

Note: Georeferenced image from Esri, 2022. Approximate lease boundary from imagery by Vertex Professional Services Ltd. (Vertex), 2023. Site features from GPS by Vertex, 2023.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2023\23E-04311 - Red Bull 29 Fed 1H\Figure 1 Characterization Schematic (23E-04311)ID17111.mxd

# ATTACHMENT 4

**Client Name: Devon Energy Production Company, LP**
**Site Name: Red Bull 29 Fed 1H**
**NMOCD Tracking #: nAPP2319260257**
**Project #: 23E-04311**
**Lab Report: 2307D90**

**Table 2. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs**

| Sample Description | | | Field Screening | | | Petroleum Hydrocarbons | | | | | | | Inorganic |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Volatile | | Extractable | | | | | |
| Sample ID | Depth (ft) | Sample Date | Volatile Organic Compounds (PID) | Extractable Organic Compounds (PetroFlag) | Chloride Concentration | Benzene | BTEX (Total) | Gasoline Range Organics (GRO) | Diesel Range Organics (DRO) | Motor Oil Range Organics (MRO) | (GRO + DRO) | Total Petroleum Hydrocarbons (TPH) | Chloride Concentration |
| | | | (ppm) | (ppm) | (ppm) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) | (mg/kg) |
| BH23-01 | 0 | July 26, 2023 | 1 | 204 | 6,284 | ND | ND | ND | 170 | 78 | 170 | 250 | 9100 |
| | 1.5 | July 26, 2023 | 0 | 74 | 144 | ND | ND | ND | 17 | ND | 17 | 17 | 270 |
| BH23-02 | 0 | July 26, 2023 | 9 | - | **11,439** | ND | ND | 6 | 3800 | 1700 | **3806** | **5506** | **16000** |
| | 1 | July 26, 2023 | 2 | 286 | 3,218 | ND | ND | ND | 230 | 120 | 230 | 350 | 4000 |
| BH23-03 | 0 | July 26, 2023 | 1 | 22 | 0 | ND | ND | ND | ND | ND | ND | ND | 120 |
| | 1 | July 26, 2023 | 0 | 29 | 0 | ND | ND | ND | ND | ND | ND | ND | 83 |
| BH23-04 | 0 | July 26, 2023 | 1 | 98 | 365 | ND | ND | ND | ND | ND | ND | ND | 1100 |
| | 1 | July 26, 2023 | 69 | 69 | 47 | ND | ND | ND | ND | ND | ND | ND | 280 |
| BH23-05 | 0 | July 26, 2023 | 0 | 52 | 28 | ND | ND | ND | ND | ND | ND | ND | 240 |
| | 1 | July 26, 2023 | 0 | 30 | 0 | ND | ND | ND | ND | ND | ND | ND | 110 |
| BH23-06 | 0 | July 26, 2023 | 0 | 45 | 0 | ND | ND | ND | ND | ND | ND | ND | 120 |
| | 1 | July 26, 2023 | 0 | 25 | 0 | ND | ND | ND | ND | ND | ND | ND | ND |
| BH23-07 | 0 | July 26, 2023 | 0 | 33 | 0 | ND | ND | ND | ND | ND | ND | ND | 72 |
| | 1 | July 26, 2023 | 0 | 30 | 0 | ND | ND | ND | ND | ND | ND | ND | ND |
| BH23-08 | 0 | July 26, 2023 | 0 | 30 | 0 | ND | ND | ND | ND | ND | ND | ND | 110 |
| | 0.5 | July 26, 2023 | 0 | 26 | 0 | ND | ND | ND | ND | ND | ND | ND | 60 |

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
**Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)**
**Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)**

VERTEX

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

August 07, 2023

Kent Stallings

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Red Bull 29 Fed 1H OrderNo.: 2307D90

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 16 sample(s) on 7/28/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-001 **Matrix:** SOIL

**Client Sample ID:** BH23-01 0.0 '
**Collection Date:** 7/26/2023 9:00:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | 170 | 9.8 | | mg/Kg | 1 | 7/31/2023 7:07:01 PM |
| Motor Oil Range Organics (MRO) | 78 | 49 | | mg/Kg | 1 | 7/31/2023 7:07:01 PM |
| Surr: DNOP | 90.0 | 69-147 | | %Rec | 1 | 7/31/2023 7:07:01 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/1/2023 11:06:04 AM |
| Surr: BFB | 87.5 | 15-244 | | %Rec | 1 | 8/1/2023 11:06:04 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.025 | | mg/Kg | 1 | 8/1/2023 11:06:04 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/1/2023 11:06:04 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/1/2023 11:06:04 AM |
| Xylenes, Total | ND | 0.098 | | mg/Kg | 1 | 8/1/2023 11:06:04 AM |
| Surr: 4-Bromofluorobenzene | 107 | 39.1-146 | | %Rec | 1 | 8/1/2023 11:06:04 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 9100 | 600 | | mg/Kg | 200 | 8/3/2023 9:11:22 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-002 **Matrix:** SOIL

**Client Sample ID:** BH23-01 1.5 '
**Collection Date:** 7/26/2023 9:10:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | 17 | 9.3 | | mg/Kg | 1 | 7/31/2023 7:31:38 PM |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 7/31/2023 7:31:38 PM |
| Surr: DNOP | 86.7 | 69-147 | | %Rec | 1 | 7/31/2023 7:31:38 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/1/2023 11:29:30 AM |
| Surr: BFB | 92.4 | 15-244 | | %Rec | 1 | 8/1/2023 11:29:30 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/1/2023 11:29:30 AM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/1/2023 11:29:30 AM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/1/2023 11:29:30 AM |
| Xylenes, Total | ND | 0.096 | | mg/Kg | 1 | 8/1/2023 11:29:30 AM |
| Surr: 4-Bromofluorobenzene | 111 | 39.1-146 | | %Rec | 1 | 8/1/2023 11:29:30 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 270 | 60 | | mg/Kg | 20 | 8/2/2023 5:13:39 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-003 **Matrix:** SOIL

**Client Sample ID:** BH23-02 0.0 '
**Collection Date:** 7/26/2023 9:20:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | 3800 | 89 | | mg/Kg | 10 | 7/31/2023 7:56:14 PM |
| Motor Oil Range Organics (MRO) | 1700 | 450 | | mg/Kg | 10 | 7/31/2023 7:56:14 PM |
| Surr: DNOP | 0 | 69-147 | S | %Rec | 10 | 7/31/2023 7:56:14 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | 6.4 | 4.8 | | mg/Kg | 1 | 8/1/2023 3:24:57 PM |
| Surr: BFB | 135 | 15-244 | | %Rec | 1 | 8/1/2023 3:24:57 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/1/2023 3:24:57 PM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/1/2023 3:24:57 PM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/1/2023 3:24:57 PM |
| Xylenes, Total | 0.15 | 0.096 | | mg/Kg | 1 | 8/1/2023 3:24:57 PM |
| Surr: 4-Bromofluorobenzene | 114 | 39.1-146 | | %Rec | 1 | 8/1/2023 3:24:57 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 16000 | 600 | | mg/Kg | 200 | 8/3/2023 9:23:46 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-004 **Matrix:** SOIL

**Client Sample ID:** BH23-02 1.0 '
**Collection Date:** 7/26/2023 9:30:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | 230 | 9.6 | | mg/Kg | 1 | 8/1/2023 10:48:06 AM |
| Motor Oil Range Organics (MRO) | 120 | 48 | | mg/Kg | 1 | 8/1/2023 10:48:06 AM |
| Surr: DNOP | 98.6 | 69-147 | | %Rec | 1 | 8/1/2023 10:48:06 AM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/1/2023 12:16:25 PM |
| Surr: BFB | 89.9 | 15-244 | | %Rec | 1 | 8/1/2023 12:16:25 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 8/1/2023 12:16:25 PM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 12:16:25 PM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 12:16:25 PM |
| Xylenes, Total | ND | 0.094 | | mg/Kg | 1 | 8/1/2023 12:16:25 PM |
| Surr: 4-Bromofluorobenzene | 110 | 39.1-146 | | %Rec | 1 | 8/1/2023 12:16:25 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 4000 | 150 | | mg/Kg | 50 | 8/3/2023 9:36:11 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-005 **Matrix:** SOIL

**Client Sample ID:** BH23-03 0.0 '
**Collection Date:** 7/26/2023 9:40:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | ND | 8.6 | | mg/Kg | 1 | 7/31/2023 8:45:18 PM |
| Motor Oil Range Organics (MRO) | ND | 43 | | mg/Kg | 1 | 7/31/2023 8:45:18 PM |
| Surr: DNOP | 83.6 | 69-147 | | %Rec | 1 | 7/31/2023 8:45:18 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/1/2023 12:39:58 PM |
| Surr: BFB | 90.5 | 15-244 | | %Rec | 1 | 8/1/2023 12:39:58 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/1/2023 12:39:58 PM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/1/2023 12:39:58 PM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/1/2023 12:39:58 PM |
| Xylenes, Total | ND | 0.098 | | mg/Kg | 1 | 8/1/2023 12:39:58 PM |
| Surr: 4-Bromofluorobenzene | 108 | 39.1-146 | | %Rec | 1 | 8/1/2023 12:39:58 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 120 | 60 | | mg/Kg | 20 | 8/2/2023 5:50:53 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-006 **Matrix:** SOIL

**Client Sample ID:** BH23-03 1.0 '
**Collection Date:** 7/26/2023 9:50:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | ND | 9.2 | | mg/Kg | 1 | 7/31/2023 9:09:51 PM |
| Motor Oil Range Organics (MRO) | ND | 46 | | mg/Kg | 1 | 7/31/2023 9:09:51 PM |
| Surr: DNOP | 86.7 | 69-147 | | %Rec | 1 | 7/31/2023 9:09:51 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/1/2023 1:03:32 PM |
| Surr: BFB | 88.1 | 15-244 | | %Rec | 1 | 8/1/2023 1:03:32 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/1/2023 1:03:32 PM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 1:03:32 PM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 1:03:32 PM |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/1/2023 1:03:32 PM |
| Surr: 4-Bromofluorobenzene | 106 | 39.1-146 | | %Rec | 1 | 8/1/2023 1:03:32 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 83 | 60 | | mg/Kg | 20 | 8/2/2023 6:28:06 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-007 **Matrix:** SOIL

**Client Sample ID:** BH23-04 0.0 '
**Collection Date:** 7/26/2023 10:00:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | ND | 9.0 | | mg/Kg | 1 | 7/31/2023 9:34:27 PM |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 7/31/2023 9:34:27 PM |
| Surr: DNOP | 87.4 | 69-147 | | %Rec | 1 | 7/31/2023 9:34:27 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/1/2023 1:27:02 PM |
| Surr: BFB | 90.5 | 15-244 | | %Rec | 1 | 8/1/2023 1:27:02 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.023 | | mg/Kg | 1 | 8/1/2023 1:27:02 PM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 1:27:02 PM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 1:27:02 PM |
| Xylenes, Total | ND | 0.093 | | mg/Kg | 1 | 8/1/2023 1:27:02 PM |
| Surr: 4-Bromofluorobenzene | 109 | 39.1-146 | | %Rec | 1 | 8/1/2023 1:27:02 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 1100 | 60 | | mg/Kg | 20 | 8/2/2023 6:40:31 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-008 **Matrix:** SOIL

**Client Sample ID:** BH23-04 1.0 '
**Collection Date:** 7/26/2023 10:10:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **DGH** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 7/31/2023 9:58:58 PM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 7/31/2023 9:58:58 PM |
| Surr: DNOP | 89.3 | 69-147 | | %Rec | 1 | 7/31/2023 9:58:58 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/1/2023 1:50:35 PM |
| Surr: BFB | 96.1 | 15-244 | | %Rec | 1 | 8/1/2023 1:50:35 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/1/2023 1:50:35 PM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 1:50:35 PM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 1:50:35 PM |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/1/2023 1:50:35 PM |
| Surr: 4-Bromofluorobenzene | 112 | 39.1-146 | | %Rec | 1 | 8/1/2023 1:50:35 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 280 | 60 | | mg/Kg | 20 | 8/2/2023 11:31:21 AM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-009 **Matrix:** SOIL

**Client Sample ID:** BH23-05 0.0 '
**Collection Date:** 7/26/2023 10:20:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.9 | | mg/Kg | 1 | 8/1/2023 1:07:29 PM |
| Motor Oil Range Organics (MRO) | ND | 50 | | mg/Kg | 1 | 8/1/2023 1:07:29 PM |
| Surr: DNOP | 102 | 69-147 | | %Rec | 1 | 8/1/2023 1:07:29 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/1/2023 10:52:25 PM |
| Surr: BFB | 90.7 | 15-244 | | %Rec | 1 | 8/1/2023 10:52:25 PM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/1/2023 10:52:25 PM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 10:52:25 PM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/1/2023 10:52:25 PM |
| Xylenes, Total | ND | 0.094 | | mg/Kg | 1 | 8/1/2023 10:52:25 PM |
| Surr: 4-Bromofluorobenzene | 109 | 39.1-146 | | %Rec | 1 | 8/1/2023 10:52:25 PM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 240 | 60 | | mg/Kg | 20 | 8/2/2023 11:43:46 AM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-010 **Matrix:** SOIL

**Client Sample ID:** BH23-05 1.0 '
**Collection Date:** 7/26/2023 10:30:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.5 | | mg/Kg | 1 | 8/1/2023 1:18:05 PM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 8/1/2023 1:18:05 PM |
| Surr: DNOP | 131 | 69-147 | | %Rec | 1 | 8/1/2023 1:18:05 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/2/2023 12:02:37 AM |
| Surr: BFB | 96.7 | 15-244 | | %Rec | 1 | 8/2/2023 12:02:37 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 12:02:37 AM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/2/2023 12:02:37 AM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/2/2023 12:02:37 AM |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/2/2023 12:02:37 AM |
| Surr: 4-Bromofluorobenzene | 115 | 39.1-146 | | %Rec | 1 | 8/2/2023 12:02:37 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 110 | 60 | | mg/Kg | 20 | 8/2/2023 11:56:11 AM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-011 **Matrix:** SOIL

**Client Sample ID:** BH23-06 0.0 '
**Collection Date:** 7/26/2023 10:40:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 8/1/2023 1:28:44 PM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/1/2023 1:28:44 PM |
| Surr: DNOP | 74.0 | 69-147 | | %Rec | 1 | 8/1/2023 1:28:44 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.7 | | mg/Kg | 1 | 8/2/2023 1:13:05 AM |
| Surr: BFB | 91.1 | 15-244 | | %Rec | 1 | 8/2/2023 1:13:05 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 1:13:05 AM |
| Toluene | ND | 0.047 | | mg/Kg | 1 | 8/2/2023 1:13:05 AM |
| Ethylbenzene | ND | 0.047 | | mg/Kg | 1 | 8/2/2023 1:13:05 AM |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/2/2023 1:13:05 AM |
| Surr: 4-Bromofluorobenzene | 109 | 39.1-146 | | %Rec | 1 | 8/2/2023 1:13:05 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 120 | 60 | | mg/Kg | 20 | 8/2/2023 12:08:35 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-012 **Matrix:** SOIL

**Client Sample ID:** BH23-06 1.0 '
**Collection Date:** 7/26/2023 10:50:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.9 | | mg/Kg | 1 | 8/1/2023 1:39:25 PM |
| Motor Oil Range Organics (MRO) | ND | 49 | | mg/Kg | 1 | 8/1/2023 1:39:25 PM |
| Surr: DNOP | 99.0 | 69-147 | | %Rec | 1 | 8/1/2023 1:39:25 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/2/2023 1:36:25 AM |
| Surr: BFB | 92.0 | 15-244 | | %Rec | 1 | 8/2/2023 1:36:25 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 1:36:25 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 1:36:25 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 1:36:25 AM |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/2/2023 1:36:25 AM |
| Surr: 4-Bromofluorobenzene | 111 | 39.1-146 | | %Rec | 1 | 8/2/2023 1:36:25 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/2/2023 1:10:37 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-013 **Matrix:** SOIL

**Client Sample ID:** BH23-07 0.0 '
**Collection Date:** 7/26/2023 11:00:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.7 | | mg/Kg | 1 | 8/1/2023 1:50:07 PM |
| Motor Oil Range Organics (MRO) | ND | 48 | | mg/Kg | 1 | 8/1/2023 1:50:07 PM |
| Surr: DNOP | 78.8 | 69-147 | | %Rec | 1 | 8/1/2023 1:50:07 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/2/2023 1:59:46 AM |
| Surr: BFB | 91.7 | 15-244 | | %Rec | 1 | 8/2/2023 1:59:46 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 1:59:46 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 1:59:46 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 1:59:46 AM |
| Xylenes, Total | ND | 0.098 | | mg/Kg | 1 | 8/2/2023 1:59:46 AM |
| Surr: 4-Bromofluorobenzene | 110 | 39.1-146 | | %Rec | 1 | 8/2/2023 1:59:46 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 72 | 60 | | mg/Kg | 20 | 8/2/2023 1:23:02 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-014 **Matrix:** SOIL

**Client Sample ID:** BH23-07 1.0 '
**Collection Date:** 7/26/2023 11:10:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 9.3 | | mg/Kg | 1 | 8/1/2023 2:00:50 PM |
| Motor Oil Range Organics (MRO) | ND | 47 | | mg/Kg | 1 | 8/1/2023 2:00:50 PM |
| Surr: DNOP | 112 | 69-147 | | %Rec | 1 | 8/1/2023 2:00:50 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/2/2023 2:23:12 AM |
| Surr: BFB | 91.7 | 15-244 | | %Rec | 1 | 8/2/2023 2:23:12 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 2:23:12 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 2:23:12 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 2:23:12 AM |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/2/2023 2:23:12 AM |
| Surr: 4-Bromofluorobenzene | 110 | 39.1-146 | | %Rec | 1 | 8/2/2023 2:23:12 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | ND | 60 | | mg/Kg | 20 | 8/2/2023 1:35:27 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-015 **Matrix:** SOIL

**Client Sample ID:** BH23-08 0.0 '
**Collection Date:** 7/26/2023 11:20:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **PRD** |
| Diesel Range Organics (DRO) | ND | 8.7 | | mg/Kg | 1 | 8/1/2023 2:11:34 PM |
| Motor Oil Range Organics (MRO) | ND | 44 | | mg/Kg | 1 | 8/1/2023 2:11:34 PM |
| Surr: DNOP | 85.9 | 69-147 | | %Rec | 1 | 8/1/2023 2:11:34 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.8 | | mg/Kg | 1 | 8/2/2023 2:46:42 AM |
| Surr: BFB | 92.0 | 15-244 | | %Rec | 1 | 8/2/2023 2:46:42 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 2:46:42 AM |
| Toluene | ND | 0.048 | | mg/Kg | 1 | 8/2/2023 2:46:42 AM |
| Ethylbenzene | ND | 0.048 | | mg/Kg | 1 | 8/2/2023 2:46:42 AM |
| Xylenes, Total | ND | 0.095 | | mg/Kg | 1 | 8/2/2023 2:46:42 AM |
| Surr: 4-Bromofluorobenzene | 110 | 39.1-146 | | %Rec | 1 | 8/2/2023 2:46:42 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 110 | 60 | | mg/Kg | 20 | 8/2/2023 1:47:51 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

**Analytical Report**
Lab Order **2307D90**
Date Reported: **8/7/2023**

# Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Devon Energy
**Project:** Red Bull 29 Fed 1H
**Lab ID:** 2307D90-016 **Matrix:** SOIL

**Client Sample ID:** BH23-08 0.5 '
**Collection Date:** 7/26/2023 11:30:00 AM
**Received Date:** 7/28/2023 7:15:00 AM

| Analyses | Result | RL | Qual | Units | DF | Date Analyzed |
|---|---|---|---|---|---|---|
| **EPA METHOD 8015M/D: DIESEL RANGE ORGANICS** | | | | | | Analyst: **SB** |
| Diesel Range Organics (DRO) | ND | 9.0 | | mg/Kg | 1 | 8/2/2023 3:07:46 PM |
| Motor Oil Range Organics (MRO) | ND | 45 | | mg/Kg | 1 | 8/2/2023 3:07:46 PM |
| Surr: DNOP | 92.8 | 69-147 | | %Rec | 1 | 8/2/2023 3:07:46 PM |
| **EPA METHOD 8015D: GASOLINE RANGE** | | | | | | Analyst: **JJP** |
| Gasoline Range Organics (GRO) | ND | 4.9 | | mg/Kg | 1 | 8/2/2023 3:10:17 AM |
| Surr: BFB | 88.6 | 15-244 | | %Rec | 1 | 8/2/2023 3:10:17 AM |
| **EPA METHOD 8021B: VOLATILES** | | | | | | Analyst: **JJP** |
| Benzene | ND | 0.024 | | mg/Kg | 1 | 8/2/2023 3:10:17 AM |
| Toluene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 3:10:17 AM |
| Ethylbenzene | ND | 0.049 | | mg/Kg | 1 | 8/2/2023 3:10:17 AM |
| Xylenes, Total | ND | 0.097 | | mg/Kg | 1 | 8/2/2023 3:10:17 AM |
| Surr: 4-Bromofluorobenzene | 107 | 39.1-146 | | %Rec | 1 | 8/2/2023 3:10:17 AM |
| **EPA METHOD 300.0: ANIONS** | | | | | | Analyst: **RBC** |
| Chloride | 60 | 60 | | mg/Kg | 20 | 8/2/2023 2:25:05 PM |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix |
| E | Above Quantitation Range/Estimated Value |
| H | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit |
| P | Sample pH Not In Range |
| PQL | Practical Quanitative Limit |
| RL | Reporting Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

| Sample ID: **MB-76612** | SampType: **MBLK** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76612** | RunNo: **98664** |
| Prep Date: **8/1/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593662** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID: **LCS-76612** | SampType: **LCS** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76612** | RunNo: **98664** |
| Prep Date: **8/1/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593663** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 92.4 | 90 | 110 | | | |

| Sample ID: **MB-76617** | SampType: **MBLK** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76617** | RunNo: **98683** |
| Prep Date: **8/2/2023** | Analysis Date: **8/2/2023** | SeqNo: **3594682** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | ND | 1.5 | | | | | | | | |

| Sample ID: **LCS-76617** | SampType: **LCS** | TestCode: **EPA Method 300.0: Anions** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76617** | RunNo: **98683** |
| Prep Date: **8/2/2023** | Analysis Date: **8/2/2023** | SeqNo: **3594683** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 14 | 1.5 | 15.00 | 0 | 92.3 | 90 | 110 | | | |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

| Sample ID: **MB-76565** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76565** | RunNo: **98619** |
| Prep Date: **7/31/2023** | Analysis Date: **7/31/2023** | SeqNo: **3591533** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 8.8 | | 10.00 | | 88.0 | 69 | 147 | | | |

| Sample ID: **LCS-76565** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76565** | RunNo: **98619** |
| Prep Date: **7/31/2023** | Analysis Date: **7/31/2023** | SeqNo: **3591534** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 47 | 10 | 50.00 | 0 | 93.2 | 61.9 | 130 | | | |
| Surr: DNOP | 4.4 | | 5.000 | | 87.7 | 69 | 147 | | | |

| Sample ID: **LCS-76582** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76582** | RunNo: **98632** |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593241** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 55 | 10 | 50.00 | 0 | 110 | 61.9 | 130 | | | |
| Surr: DNOP | 5.3 | | 5.000 | | 105 | 69 | 147 | | | |

| Sample ID: **MB-76582** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76582** | RunNo: **98632** |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593242** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 11 | | 10.00 | | 105 | 69 | 147 | | | |

| Sample ID: **MB-76620** | SampType: **MBLK** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76620** | RunNo: **98691** |
| Prep Date: **8/2/2023** | Analysis Date: **8/2/2023** | SeqNo: **3594941** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | ND | 10 | | | | | | | | |
| Motor Oil Range Organics (MRO) | ND | 50 | | | | | | | | |
| Surr: DNOP | 9.0 | | 10.00 | | 89.7 | 69 | 147 | | | |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

| Sample ID: **LCS-76620** | SampType: **LCS** | TestCode: **EPA Method 8015M/D: Diesel Range Organics** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76620** | RunNo: **98691** |
| Prep Date: **8/2/2023** | Analysis Date: **8/2/2023** | SeqNo: **3594942** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics (DRO) | 44 | 10 | 50.00 | 0 | 88.7 | 61.9 | 130 | | | |
| Surr: DNOP | 4.3 | | 5.000 | | 86.0 | 69 | 147 | | | |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

| Sample ID: **lcs-76543** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **76543** | RunNo: **98601** | | | | | | | |
| Prep Date: **7/28/2023** | Analysis Date: **7/31/2023** | SeqNo: **3591155** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 23 | 5.0 | 25.00 | 0 | 92.9 | 70 | 130 | | | |
| Surr: BFB | 2000 | | 1000 | | 199 | 15 | 244 | | | |

| Sample ID: **mb-76543** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **76543** | RunNo: **98601** | | | | | | | |
| Prep Date: **7/28/2023** | Analysis Date: **7/31/2023** | SeqNo: **3591604** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 960 | | 1000 | | 96.1 | 15 | 244 | | | |

| Sample ID: **lcs-76571** | SampType: **LCS** | TestCode: **EPA Method 8015D: Gasoline Range** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **LCSS** | Batch ID: **76571** | RunNo: **98626** | | | | | | | |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593250** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 22 | 5.0 | 25.00 | 0 | 87.6 | 70 | 130 | | | |
| Surr: BFB | 1900 | | 1000 | | 191 | 15 | 244 | | | |

| Sample ID: **mb-76571** | SampType: **MBLK** | TestCode: **EPA Method 8015D: Gasoline Range** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **PBS** | Batch ID: **76571** | RunNo: **98626** | | | | | | | |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593251** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | ND | 5.0 | | | | | | | | |
| Surr: BFB | 970 | | 1000 | | 97.4 | 15 | 244 | | | |

| Sample ID: **2307d90-009ams** | SampType: **MS** | TestCode: **EPA Method 8015D: Gasoline Range** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **BH23-05 0.0 '** | Batch ID: **76571** | RunNo: **98626** | | | | | | | |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593266** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 23 | 4.7 | 23.63 | 0 | 96.2 | 70 | 130 | | | |
| Surr: BFB | 1900 | | 945.2 | | 203 | 15 | 244 | | | |

| Sample ID: **2307d90-009amsd** | SampType: **MSD** | TestCode: **EPA Method 8015D: Gasoline Range** | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Client ID: **BH23-05 0.0 '** | Batch ID: **76571** | RunNo: **98626** | | | | | | | |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593267** | Units: **mg/Kg** | | | | | | |
| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

| Sample ID: **2307d90-009amsd** | SampType: **MSD** | TestCode: **EPA Method 8015D: Gasoline Range** |
|---|---|---|
| Client ID: **BH23-05 0.0 '** | Batch ID: **76571** | RunNo: **98626** |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593267** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Organics (GRO) | 23 | 4.7 | 23.41 | 0 | 96.2 | 70 | 130 | 0.982 | 20 | |
| Surr: BFB | 1900 | | 936.3 | | 204 | 15 | 244 | 0 | 0 | |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

| Sample ID: **LCS-76543** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76543** | RunNo: **98601** |
| Prep Date: **7/28/2023** | Analysis Date: **7/31/2023** | SeqNo: **3591156** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1.0 | 0.025 | 1.000 | 0 | 101 | 70 | 130 | | | |
| Toluene | 1.0 | 0.050 | 1.000 | 0 | 103 | 70 | 130 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 105 | 70 | 130 | | | |
| Xylenes, Total | 3.2 | 0.10 | 3.000 | 0 | 107 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 114 | 39.1 | 146 | | | |

| Sample ID: **mb-76543** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76543** | RunNo: **98601** |
| Prep Date: **7/28/2023** | Analysis Date: **7/31/2023** | SeqNo: **3591642** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 1.000 | | 114 | 39.1 | 146 | | | |

| Sample ID: **LCS-76571** | SampType: **LCS** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **LCSS** | Batch ID: **76571** | RunNo: **98626** |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593284** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.94 | 0.025 | 1.000 | 0 | 93.6 | 70 | 130 | | | |
| Toluene | 0.98 | 0.050 | 1.000 | 0 | 97.6 | 70 | 130 | | | |
| Ethylbenzene | 1.0 | 0.050 | 1.000 | 0 | 102 | 70 | 130 | | | |
| Xylenes, Total | 3.1 | 0.10 | 3.000 | 0 | 104 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 1.2 | | 1.000 | | 117 | 39.1 | 146 | | | |

| Sample ID: **mb-76571** | SampType: **MBLK** | TestCode: **EPA Method 8021B: Volatiles** |
|---|---|---|
| Client ID: **PBS** | Batch ID: **76571** | RunNo: **98626** |
| Prep Date: **7/31/2023** | Analysis Date: **8/1/2023** | SeqNo: **3593285** Units: **mg/Kg** |

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 0.025 | | | | | | | | |
| Toluene | ND | 0.050 | | | | | | | | |
| Ethylbenzene | ND | 0.050 | | | | | | | | |
| Xylenes, Total | ND | 0.10 | | | | | | | | |
| Surr: 4-Bromofluorobenzene | 1.2 | | 1.000 | | 117 | 39.1 | 146 | | | |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: **2307D90**

***07-Aug-23***

**Client:** Devon Energy

**Project:** Red Bull 29 Fed 1H

Sample ID: **2307d90-001ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-01 0.0 '** Batch ID: **76543** RunNo: **98626**

Prep Date: **7/28/2023** Analysis Date: **8/1/2023** SeqNo: **3593296** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.99 | 0.025 | 0.9814 | 0 | 101 | 70 | 130 | | | |
| Toluene | 1.0 | 0.049 | 0.9814 | 0 | 102 | 70 | 130 | | | |
| Ethylbenzene | 1.0 | 0.049 | 0.9814 | 0 | 103 | 70 | 130 | | | |
| Xylenes, Total | 3.1 | 0.098 | 2.944 | 0 | 105 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 0.9814 | | 115 | 39.1 | 146 | | | |

Sample ID: **2307d90-001amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-01 0.0 '** Batch ID: **76543** RunNo: **98626**

Prep Date: **7/28/2023** Analysis Date: **8/1/2023** SeqNo: **3593297** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.95 | 0.025 | 0.9833 | 0 | 97.0 | 70 | 130 | 3.58 | 20 | |
| Toluene | 0.97 | 0.049 | 0.9833 | 0 | 99.1 | 70 | 130 | 2.59 | 20 | |
| Ethylbenzene | 0.99 | 0.049 | 0.9833 | 0 | 101 | 70 | 130 | 1.80 | 20 | |
| Xylenes, Total | 3.0 | 0.098 | 2.950 | 0 | 102 | 70 | 130 | 2.67 | 20 | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 0.9833 | | 113 | 39.1 | 146 | 0 | 0 | |

Sample ID: **2307d90-010ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-05 1.0 '** Batch ID: **76571** RunNo: **98626**

Prep Date: **7/31/2023** Analysis Date: **8/2/2023** SeqNo: **3593303** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.94 | 0.024 | 0.9662 | 0 | 97.2 | 70 | 130 | | | |
| Toluene | 0.99 | 0.048 | 0.9662 | 0 | 102 | 70 | 130 | | | |
| Ethylbenzene | 1.0 | 0.048 | 0.9662 | 0 | 108 | 70 | 130 | | | |
| Xylenes, Total | 3.2 | 0.097 | 2.899 | 0 | 109 | 70 | 130 | | | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 0.9662 | | 114 | 39.1 | 146 | | | |

Sample ID: **2307d90-010amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-05 1.0 '** Batch ID: **76571** RunNo: **98626**

Prep Date: **7/31/2023** Analysis Date: **8/2/2023** SeqNo: **3593304** Units: **mg/Kg**

| Analyte | Result | PQL | SPK value | SPK Ref Val | %REC | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 0.91 | 0.024 | 0.9718 | 0 | 93.7 | 70 | 130 | 3.10 | 20 | |
| Toluene | 0.95 | 0.049 | 0.9718 | 0 | 97.5 | 70 | 130 | 3.91 | 20 | |
| Ethylbenzene | 1.0 | 0.049 | 0.9718 | 0 | 103 | 70 | 130 | 3.87 | 20 | |
| Xylenes, Total | 3.0 | 0.097 | 2.915 | 0 | 105 | 70 | 130 | 3.29 | 20 | |
| Surr: 4-Bromofluorobenzene | 1.1 | | 0.9718 | | 109 | 39.1 | 146 | 0 | 0 | |

**Qualifiers:**

| | |
|---|---|
| * | Value exceeds Maximum Contaminant Level. |
| D | Sample Diluted Due to Matrix |
| H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit |
| PQL | Practical Quanitative Limit |
| S | % Recovery outside of standard limits. If undiluted results may be estimated. |
| B | Analyte detected in the associated Method Blank |
| E | Above Quantitation Range/Estimated Value |
| J | Analyte detected below quantitation limits |
| P | Sample pH Not In Range |
| RL | Reporting Limit |

HALL ENVIRONMENTAL ANALYSIS LABORATORY

*Hall Environmental Analysis Laboratory*
*4901 Hawkins NE*
*Albuquerque, NM 87109*
*TEL: 505-345-3975 FAX: 505-345-4107*
*Website: www.hallenvironmental.com*

# Sample Log-In Check List

Client Name: Devon Energy | Work Order Number: 2307D90 | RcptNo: 1

Received By: Tracy Casarrubias 7/28/2023 7:15:00 AM

Completed By: Tracy Casarrubias 7/28/2023 7:43:27 AM

Reviewed By: JS 7-28-23

## Chain of Custody

| | | | |
|---|---|---|---|
| 1. Is Chain of Custody complete? | Yes ☐ | No ☑ | Not Present ☐ |
| 2. How was the sample delivered? | Courier | | |

## Log In

| | | | |
|---|---|---|---|
| 3. Was an attempt made to cool the samples? | Yes ☑ | No ☐ | NA ☐ |
| 4. Were all samples received at a temperature of >0° C to 6.0°C | Yes ☑ | No ☐ | NA ☐ |
| 5. Sample(s) in proper container(s)? | Yes ☑ | No ☐ | |
| 6. Sufficient sample volume for indicated test(s)? | Yes ☑ | No ☐ | |
| 7. Are samples (except VOA and ONG) properly preserved? | Yes ☑ | No ☐ | |
| 8. Was preservative added to bottles? | Yes ☐ | No ☑ | NA ☐ |
| 9. Received at least 1 vial with headspace <1/4" for AQ VOA? | Yes ☐ | No ☐ | NA ☑ |
| 10. Were any sample containers received broken? | Yes ☐ | No ☑ | |
| 11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) | Yes ☑ | No ☐ | # of preserved bottles checked for pH: (<2 or >12 unless noted) |
| 12. Are matrices correctly identified on Chain of Custody? | Yes ☑ | No ☐ | Adjusted? |
| 13. Is it clear what analyses were requested? | Yes ☑ | No ☐ | |
| 14. Were all holding times able to be met? (If no, notify customer for authorization.) | Yes ☑ | No ☐ | Checked by: JS 7/28/23 |

## Special Handling (if applicable)

| | | | |
|---|---|---|---|
| 15. Was client notified of all discrepancies with this order? | Yes ☐ | No ☐ | NA ☑ |

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number, and Email/Fax are missing on COC- TMC 7/28/23

16. Additional remarks:

17. **Cooler Information**

| Cooler No | Temp °C | Condition | Seal Intact | Seal No | Seal Date | Signed By |
|---|---|---|---|---|---|---|
| 1 | 0 | Good | Yes | Yogi | | |

# Chain-of-Custody Record

Client: Devon

Direct Bill

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☑ Standard ☑ Rush 5 Day

Project Name: Red Bull 29 Fed 1H

Project #: 23E-04311

Project Manager: Kent Stallings

Sampler: TH

On Ice: ☑ Yes ☐ No 4091

# of Coolers: 1

Cooler Temp(including CF): 0-0=0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

| Date | Time | Matrix | Sample Name | | Container Type and # | Preservative Type | HEAL No. 2307D90 | BTEX / MTBE / TMB's (8021) | TPH 8015D(GRO / DRO / MRO) | 8081 Pesticides/8082 PCB's | EDB (Method 504.1) | PAHs by 8310 or 8270SIMS | RCRA 8 Metals | Cl, F, Br, $NO_3$, $NO_2$, $PO_4$, $SO_4$ | 8260 (VOA) | 8270 (Semi-VOA) | Total Coliform (Present/Absent) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7-26-23 | 0900 | Soil | BH23-01 | 0.0' | 4oz | ICE | 001 | | | | | | | | | | |
| | 0910 | | BH23-01 | 1.5' | | | 002 | | | | | | | | | | |
| | 0920 | | BH23-02 | 0.0' | | | 003 | | | | | | | | | | |
| | 0930 | | BH23-02 | 1.0' | | | 004 | | | | | | | | | | |
| | 0940 | | BH23-03 | 0.0' | | | 005 | | | | | | | | | | |
| | 0950 | | BH23-03 | 1.0' | | | 006 | | | | | | | | | | |
| | 1000 | | BH23-04 | 0.0' | | | 007 | | | | | | | | | | |
| | 1010 | | BH23-04 | 1.0' | | | 008 | | | | | | | | | | |
| | 1020 | | BH23-05 | 0.0' | | | 009 | | | | | | | | | | |
| | 1030 | | BH23-05 | 1.0' | | | 010 | | | | | | | | | | |
| | 1040 | | BH23-06 | 0.0' | | | 011 | | | | | | | | | | |
| | 1050 | | BH23-06 | 1.0' | | | 012 | | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| | | | | | 7/27/23 | 800 |
| Date: 7/27/23 | Time: 1900 | Relinquished by: | Received by: | Via: Courier | Date 7/28/23 | Time 7:15 |

Remarks: CC: Kent Stallings

kstallings@vertex.ca

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

# Chain-of-Custody Record

Client: Devon

Direct Bill

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☑ Standard ☑ Rush 5 DAY

Project Name:

Red Bull 29 Fed 1H

Project #:

23E-04311

Project Manager:

Kent Stallings

Sampler: AH

On Ice: ☒ Yes ☐ No 4091

# of Coolers: 1

Cooler Temp(including CF): 0 - 0 = 0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

| Date | Time | Matrix | Sample Name | Container Type and # | Preservative Type | HEAL No. 2307D90 | BTEX / MTBE / TMB's (8021) | TPH: 8015D(GRO / DRO / MRO) | 8081 Pesticides/8082 PCB's | EDB (Method 504.1) | PAHs by 8310 or 8270SIMS | RCRA 8 Metals | Cl, F, Br, $NO_3$, $NO_2$, $PO_4$, $SO_4$ | 8260 (VOA) | 8270 (Semi-VOA) | Total Coliform (Present/Absent) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7-26-23 | 1100 | Soil | BH23-07 0.0' | 4oz | ICE | 013 | | | | | | | | | | |
| | 1110 | | BH23-07 1.0' | | | 014 | | | | | | | | | | |
| | 1120 | | BH23-08 0.0' | | | 015 | | | | | | | | | | |
| | 1130 | | BH23-08 0.5' | | | 016 | | | | | | | | | | |

| Date: | Time: | Relinquished by: | Received by: | Via: | Date | Time |
|---|---|---|---|---|---|---|
| | | | | | 7/27/23 | 800 |
| 7/27/23 | 1900 | | | Courier | 7/28/23 | 7:15 |

Remarks:

Kent Stallings

CC: Kstallings@vertex.ca

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

**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 275953

## CONDITIONS

| | |
|---|---|
| Operator:<br>DEVON ENERGY PRODUCTION COMPANY, LP<br>333 West Sheridan Ave.<br>Oklahoma City, OK 73102 | OGRID:<br>6137 |
| | Action Number:<br>275953 |
| | Action Type:<br>[C-141] Release Corrective Action (C-141) |

**CONDITIONS**

| Created By | Condition | Condition Date |
|---|---|---|
| nvelez | Remediation plan conditionally approved with the following: 1. If exploratory boring to determine depth tho water is not advanced within 0.5 miles from the release, then the closure standard will be gw<50 ft. below grade. Keep in mind, the boring location should be as close to the point of release as possible. 2. Devon has 90-days (May 2, 2024) to submit its appropriate or final remediation closure report. | 2/2/2024 |