



April 15, 2021

Vertex Project #: 21E-00087-008

Spill Closure Report: Young Deep Unit #011
Unit F, Section 09, Township 18 South, Range 32 East
County: Lea
NMOCD Tracking Number: nAPP2107445051

Prepared For: Matador Production Company
5400 LBJ Freeway
Suite 1500
Dallas, Texas 75240

New Mexico Oil Conservation Division – District 1 – Hobbs

1625 North French Drive
Hobbs, New Mexico 88240

Matador Production Company (Matador) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for a produced water release that occurred on March 11, 2021 at Young Deep Unit #011 (hereafter referred to as “Young Deep”. Matador provided notification of the spill to New Mexico Oil Conservation Division (NMOCD) District 1 and the Bureau of Land Management (BLM), who owns the land, via submission of an initial C-141 Release Notification (Attachment 1) on March 11, 2021. The NMOCD tracking number assigned to this incident is nAPP2107445051.

This letter provides a description of the spill assessment and remediation activities, and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) have been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release.

Incident Description

On March 11, 2021, a release occurred at Matador’s Young Deep site when a check valve failed on a polyline. This incident resulted in the release of approximately 68 barrels (bbls) of produced water onto the adjacent pasture east of the engineered pad. No produced water was recovered. The spill was fenced off to prevent cattle from entering the release area. Vertex was notified shortly after the release occurred and an emergency 811 call was placed to excavate the release area immediately. No produced water was released into undisturbed areas or waterways.

Site Characterization

The release at Young Deep occurred on federally-owned land, N 32.764726, W 103.772860, approximately 6 miles south of Maljamar, New Mexico. The legal description for the site is Unit F, Section 09, Township 18 South, Range 32 East, Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic are included in Attachment 2.

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Matador Production Company

Young Deep Unit #011

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The Young Deep complex consists of production equipment, a tank battery, and nearby oil and gas exploration and production wellpads, and is typical of oil and gas-related sites in the western portion of the Permian Basin. The following sections specifically describe the release area on the eastern edge of the earthen bermed containment and into the pasture adjacent to the containment.

The surrounding landscape is associated with the hills, plains, and ridges typical of elevations between 3,000 and 4,400 feet above sea level. The climate is semi-arid with an average annual precipitation ranging between 10 and 15 inches. Historically, the plant communities in this area have been dominated by sand bluestem, dropseeds, and warm season mid grasses and forbs. Shinnery oak, sandsage, lovegrass and mesquite can be invaders and can dominate the area. Litter is small and its movement is low across bare patches (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted facility pad area.

The Geological Map of New Mexico indicates the surface geology at Young Deep is comprised of Qep – Interlaid eolian sands and piedmont-slope deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service *Web Soil Survey* characterizes the soil at Young Deep as Kermit soils and Dune land along with Berino-Cacique. This soil tends to be well drained to excessively drained with low to very low runoff and moderate to low water storage in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is low potential for karst geology to be present near Young Deep (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Pecos River, located approximately 31 miles west of the site (United States Fish and Wildlife Service, 2020). There are no continuously flowing watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features at Young Deep, as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest recent well to the site is a United States Geological Survey-identified well, located approximately 0.92 miles southeast of Young Deep, with a depth to groundwater of 84 feet below ground surface (bgs; United States Department of the Interior, United States Geological Survey, 2020). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

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

Based on data included in the closure criteria determination worksheet, the release at Young Deep is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site are determined to be associated with the following constituent concentration limits based on depth to groundwater.

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Table 1. Closure Criteria for Soils Impacted by a Release		
Depth to Groundwater	Constituent	Limit
<50 feet	Chloride	600 mg/kg
	TPH ¹ (GRO + DRO + MRO)	100 mg/kg
	BTEX ²	50 mg/kg
	Benzene	10 mg/kg

¹Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)

²Benzene, toluene, ethylbenzene and xylenes (BTEX)

Remedial Actions

On March 11, 2021, Matador contracted with Vertex to complete release delineation and remediation at Young Deep through field screening procedures, oversight of the remediation fieldwork and final confirmatory sampling. The initial spill inspection and site characterization activities at Young Deep were completed at the same time as excavation by Vertex on March 11, 2021. The Daily Field Report (DFR) and field screening data associated with the visit is included in Attachment 4. Using initial field screening data, the release was delineated horizontally and vertically, and remediation was started. Excavation of impacted soils was conducted between March 11 and 17, 2021, with a Vertex representative on-site to conduct field screen procedures to determine final horizontal and vertical extents of the excavation area.

On March 23, 2021, following the completion of excavation activities, Vertex provided 48-hour notification of confirmation sampling to NMOCD, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 5).

On March 26, 2021, Vertex collected a total of seven five-point composite confirmatory samples from the base and side walls of the excavation, at depths ranging between ground surface and 4.5 feet bgs. Each composite sample was representative of no more than 200 square feet per the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which does not require prior NMOCD approval. The composite samples were placed into laboratory-provided containers, preserved on ice, and submitted to a National Environmental Laboratory Accreditation Program-approved laboratory for chemical analysis.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Confirmatory sample analytical data are summarized in Attachment 6. Laboratory data reports and chain of custody forms are included in Attachment 7.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of each of the five-point composite samples. The confirmatory sample locations are presented on Figure 1 (Attachment 2). Relevant equipment and prominent features/reference points at the site are mapped as well.

Closure Request

Vertex recommends no additional action to address the release at Young Deep. Laboratory analyses of the final confirmatory samples showed constituent of concern concentration levels below NMOCD closure criteria for areas where

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depth to groundwater is less than 50 feet bgs as presented in Table 1. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident (nAPP2107445051) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Matador certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the March 11, 2021, release at Young Deep.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.361.9880 or mpeppin@vertex.ca.

Sincerely,



Monica Peppin
PROJECT MANAGER

Attachments

- Attachment 1. NMOCD C-141 Report
- Attachment 2. Figures
- Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
- Attachment 4. Daily Field Report(s) with Photographs
- Attachment 5. Required 48-hr Notification of Confirmation Sampling to Regulatory Agencies
- Attachment 6. Tables
- Attachment 7. Laboratory Data Reports/Chain of Custody Forms

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Matador Production Company
Young Deep Unit #011

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References

- New Mexico Bureau of Geology and Mineral Resources. (2020). *Interactive Geologic Map*. Retrieved from <http://geoinfo.nmt.edu>
- New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.
- United States Department of Agriculture, Natural Resources Conservation Service. (2020). *Web Soil Survey*. Retrieved from <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
- United States Department of the Interior, Bureau of Land Management. (2020). *New Mexico Cave/Karsts*. Retrieved from <https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico>
- United States Department of the Interior, United States Geological Survey. (2020). *Groundwater for New Mexico: Water Levels*. Retrieved from <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>
- United States Fish and Wildlife Service. (2020). *National Wetlands Inventory*. Retrieved from <https://www.fws.gov/wetlands/Data/Mapper.html>

Matador Production Company
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Limitations

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

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

ATTACHMENT 1

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

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

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

Incident ID	nAPP2107445051
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Matador Production Company	OGRID: 228937
Contact Name: John Hurt	Contact Telephone: 972-371-5200
Contact email: JHurt@matadorresources.com	Incident # (assigned by OCD) nAPP2107445051
Contact mailing address: 5400 LBJ Freeway, Suite 1500 Dallas, TX 75240	

Location of Release Source

Latitude 32.764726 Longitude -103.772860
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Young Deep Unit #011	Site Type: Oil
Date Release Discovered: 03/11/2021	API# (if applicable)

Unit Letter	Section	Township	Range	County
F	09	18S	32E	Lea

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 68 bbls	Volume Recovered (bbls) 0 bbls
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/>	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Check valve failure resulting in the release of produced water into pasture.

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Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? >25 bbls
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, email sent to OCD-Jim Griswold, Mike Bratcher, and BLM on 3/11/21 by Vertex Resources for Matador.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> 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: <u>Arsenio Jones</u>	Title: <u>RES Specialist</u>
Signature: 	Date: <u>6/15/21</u>
email: <u>arsenio.jones@matadorresources.com</u>	Telephone: <u>972- 371-5200</u>
<u>OCD Only</u> Received by: _____ Date: _____	

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Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<u><50</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

Oil Conservation Division

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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: Arsenio Jones Title: RES Specialist

Signature:  Date: 6/15/21

email: arsenio.jones@matadorresources.com Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2107445051
District RP	
Facility ID	
Application ID	


Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Arsenio Jones Title: RES Specialist
Signature:  Date: 6/15/21
email: arsenio.jones@matadorresources.com Telephone: _____

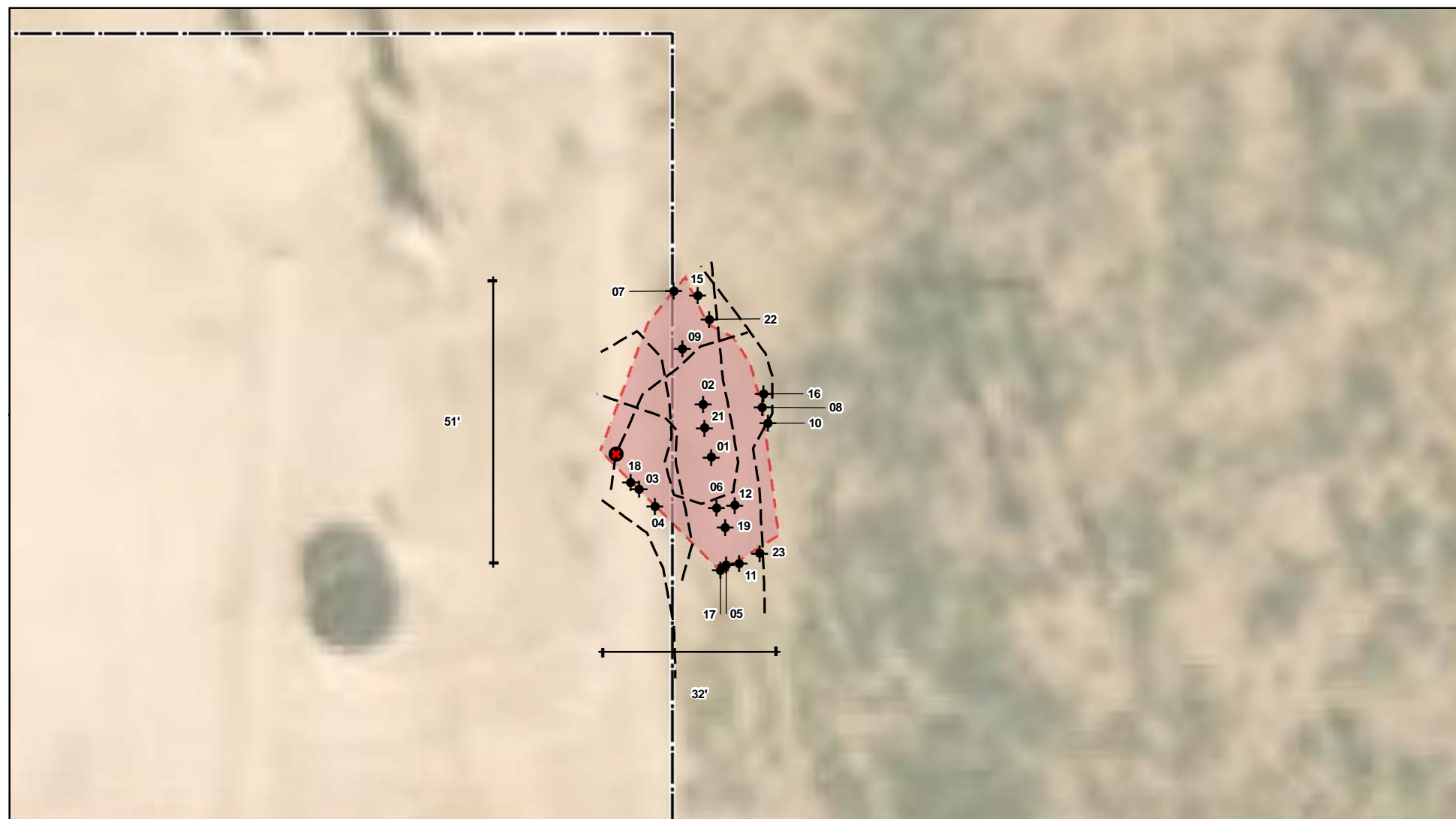
OCD Only

Received by: Chad Hensley Date: 07/16/2021

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

Closure Approved by:  Date: 07/16/2021
Printed Name: Chad Hensley Title: Environmental Specialist Advanced

ATTACHMENT 2



- ◆ Borehole (Prefixed by "BH21-")
- Point of Release
- Aboveground Pipeline
- Approximate Spill Extent (914 sq. ft.)
- Approximate Lease Boundary



0 5 10 20 Feet

Map Center:
Lat/Long: 32.764744, -103.772792

WGS 1984 UTM Zone 13N

Date: Apr 26/21



Initial Characterization Young Deep Unit #011

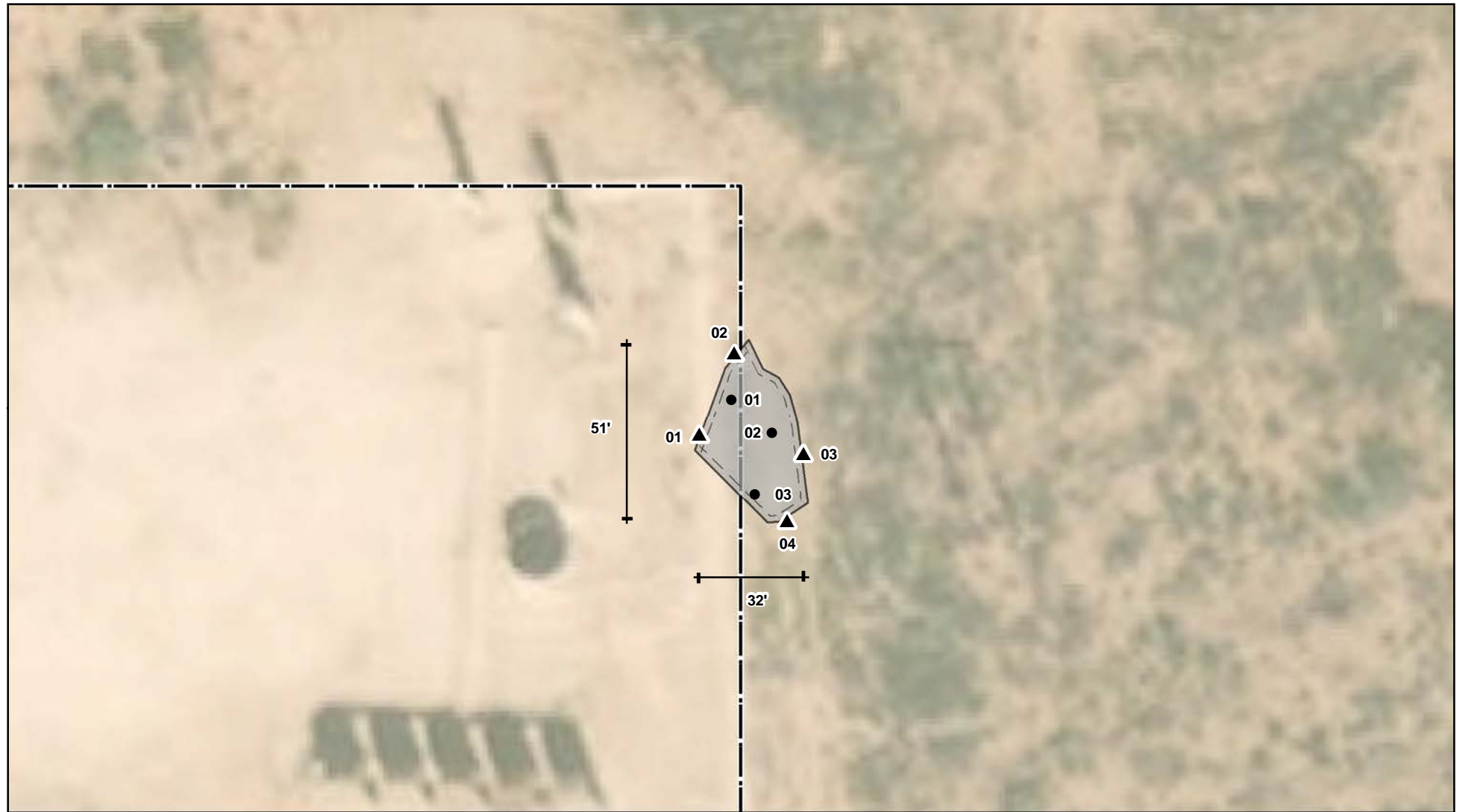
FIGURE:

1



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

Note: Basemap imagery from ESRI 2020.



- Base Sample
- ▲ Wall Sample
-  Approximate Spill Extent (914 sq. ft.)
-  Approximate Site Boundary



0 5 10 20 30 Feet
 Map Center:
 Lat/Long: 32.764759, -103.772836

WGS 1984 UTM Zone 13N
 Date: Apr 12/21



Confirmatory Schematic Young Deep Unit #011

FIGURE:

2



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: Basemap imagery from ESRI 2020.

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ATTACHMENT 3


Closure Criteria Worksheet			
Site Name: Young Deep Unit #011			
Spill Coordinates:		X: 32.764726	Y: -103.772860
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	<50	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	164,287	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	5,308	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	36,643	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	36,643	feet
	ii) Within 1000 feet of any fresh water well or spring	36,643	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	14,213	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	500	year
11	Soil Type	Kermit soils and Dune land and Berino Cacique	
12	Ecological Classification	Sandhills	
13	Geology	Qep-Eolian and piedmont deposits	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'

Young Deep Unit #011

Nearest Well Distance 0.92 miles

Legend

 Young Deep Unit #011

Young Deep Unit #011 

324512103455001  324512103455001

324458103454301  324458103454301

Google Earth




3000 ft

Young Deep Unit #011

0.5 mile radius

Legend

 Young Deep Unit #011

Young Deep Unit #011



126A

Google Earth

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Released to Imaging: 7/16/2021 8:16:12 AM



3000 ft



[USGS Home](#)
[Contact USGS](#)
[Search USGS](#)

National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

United States

GO

Click to hide News Bulletins

- [Introducing The Next Generation of USGS Water Data for the Nation](#)
- [Full News](#) 

Groundwater levels for the Nation

* IMPORTANT: [Next Generation Station Page](#)

Search Results -- 1 sites found

site_no list =

- 324512103455001

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 324512103455001 18S.32E.16.223433

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 12080003

Latitude 32°45'12", Longitude 103°45'50" NAD27

Land-surface elevation 3,800 feet above NAVD88

The depth of the well is 100 feet below land surface.

This well is completed in the Other aquifers (N9999OTHER) national aquifer.

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

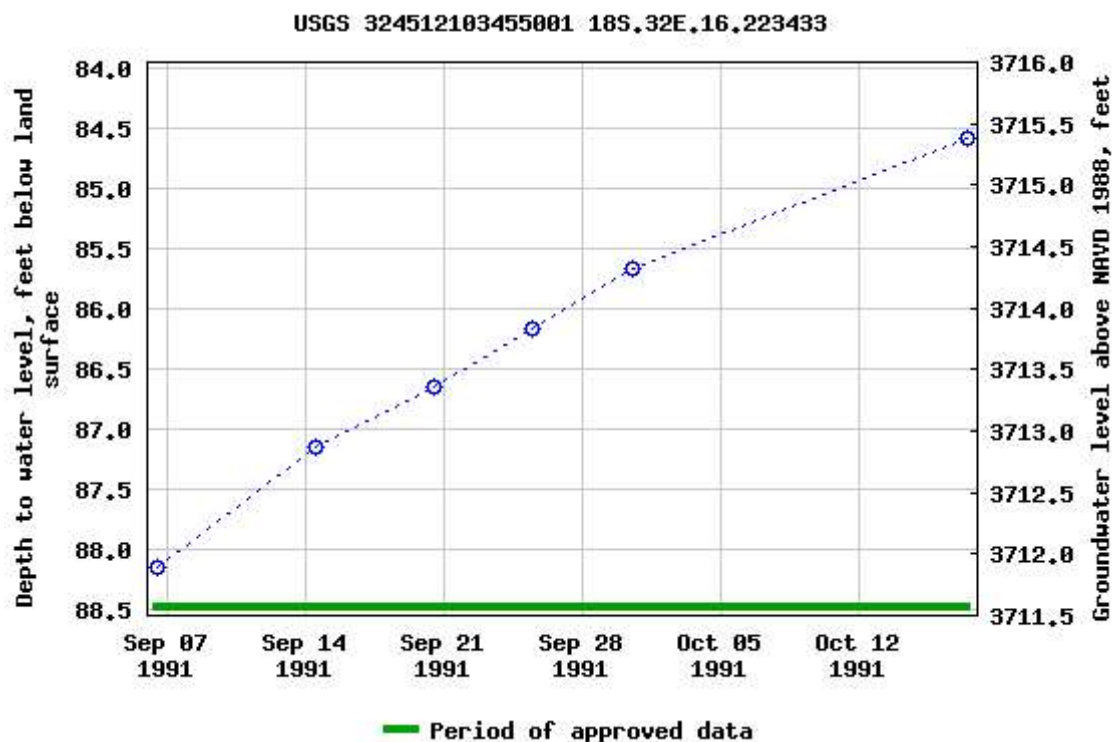
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Breaks in the plot represent a gap of at least one year between field measurements.

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Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2021-03-17 09:44:26 EDT


0.7 0.62 nadww01

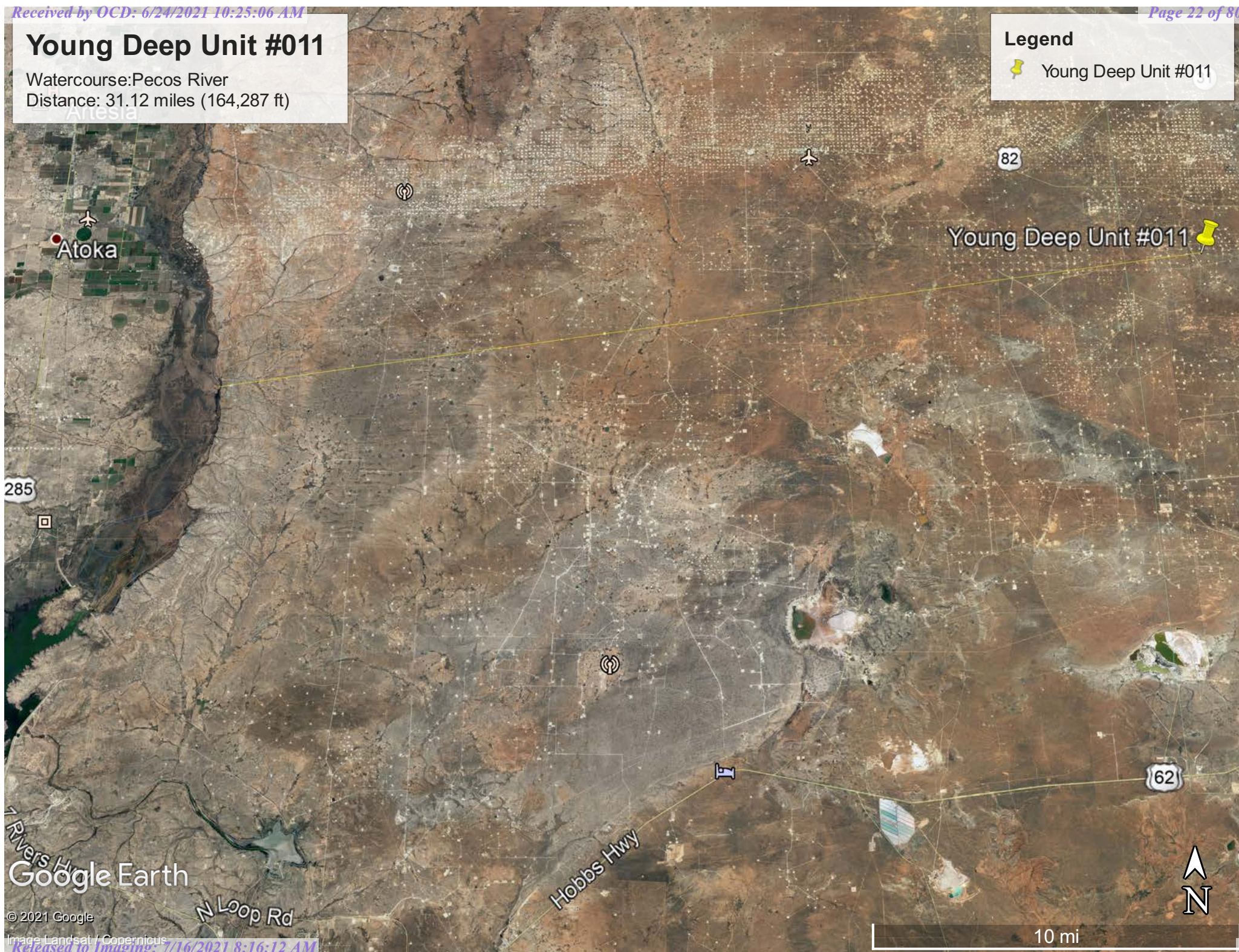


Young Deep Unit #011

Watercourse: Pecos River
Distance: 31.12 miles (164,287 ft)

Legend

 Young Deep Unit #011



Google Earth

© 2021 Google

Image Landsat / Copernicus

Released to Imaging: 7/16/2021 8:16:12 AM



Young Deep Unit 011



March 17, 2021

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.


Young Deep Unit #011

Nearest Residence: 6.94 miles (36,635 ft)

Legend

 Young Deep Unit #011

Young Deep Unit #011 

 Residence

Google Earth




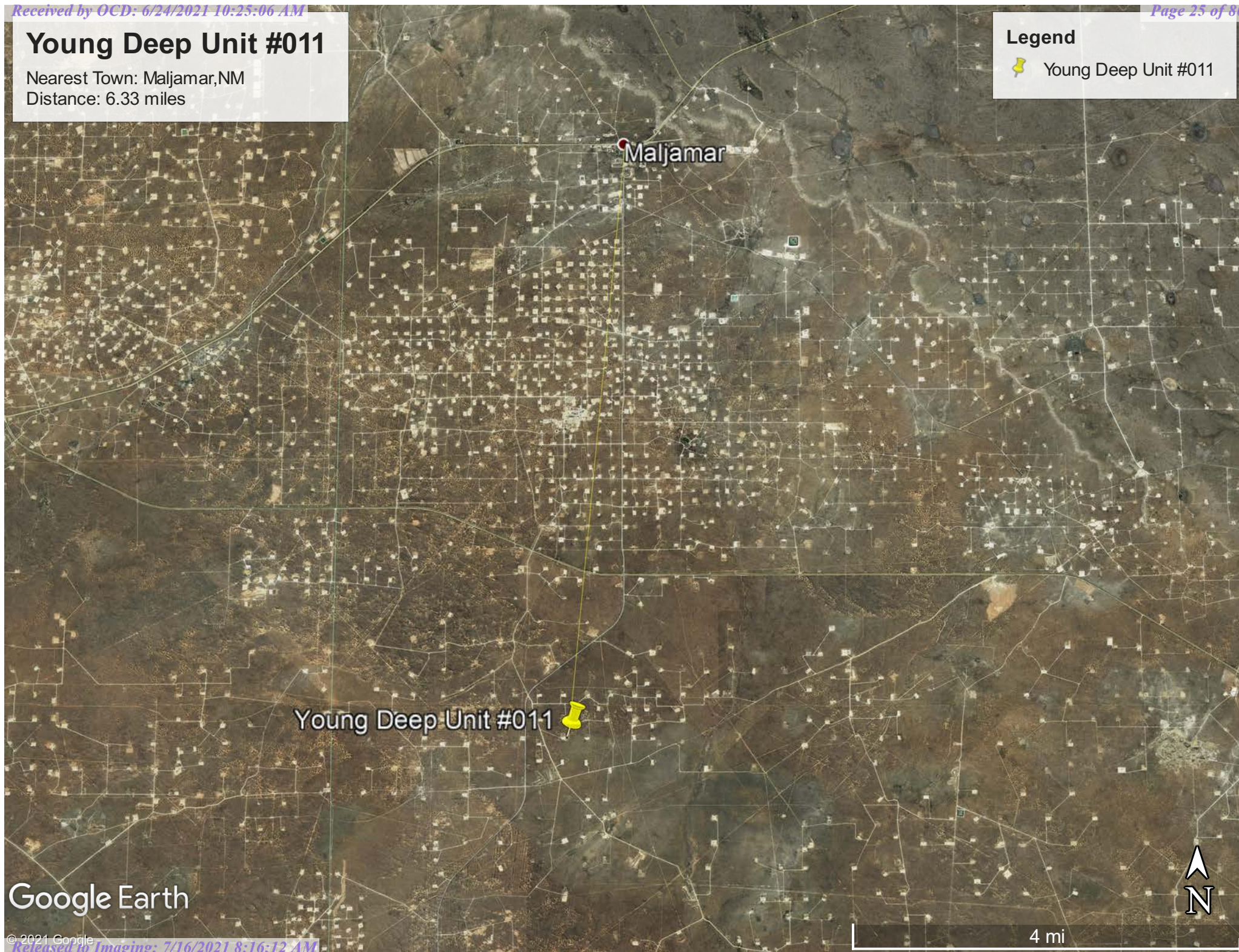
3 mi

Young Deep Unit #011

Nearest Town: Maljamar, NM
Distance: 6.33 miles

Legend

 Young Deep Unit #011



Google Earth



Young Deep Unit 011



March 17, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

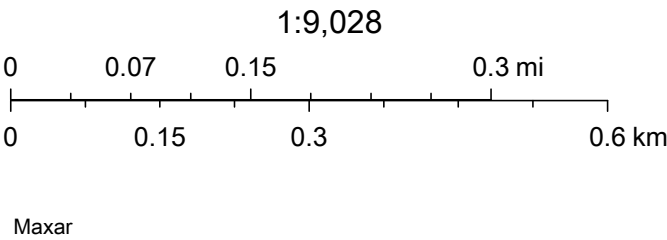
- Lake
- Other
- Riverine

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.

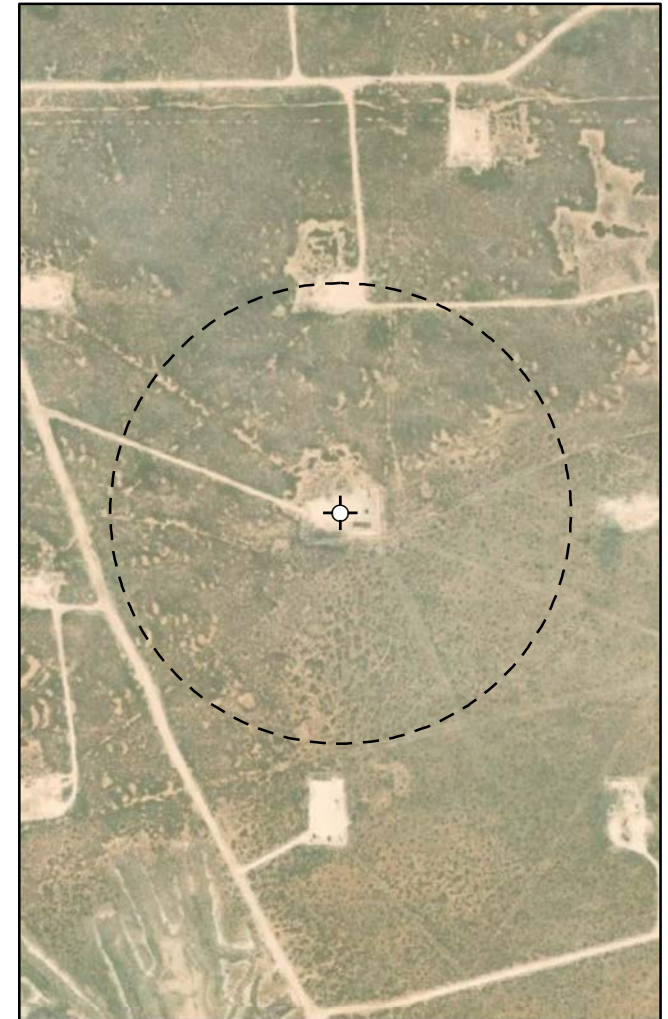
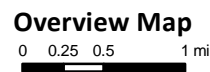
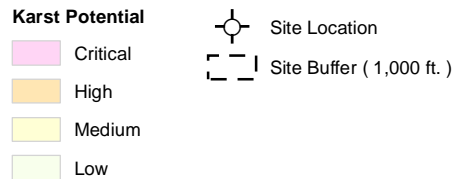
Coal Mines in New Mexico



4/9/2021, 9:22:09 AM



Document Path: G:\Projects\US PROJECTS\Matador Resources\21E-00087008 - Young Deep Unit #011\Fig X Karst Potential Young Deep Unit #011.mxd



Map Center:
Lat/Long: 32.764660, -103.773372

NAD 1983 UTM Zone 13N
Date: Mar 31/21



Karst Potential Young Deep Unit #011

FIGURE:

X



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

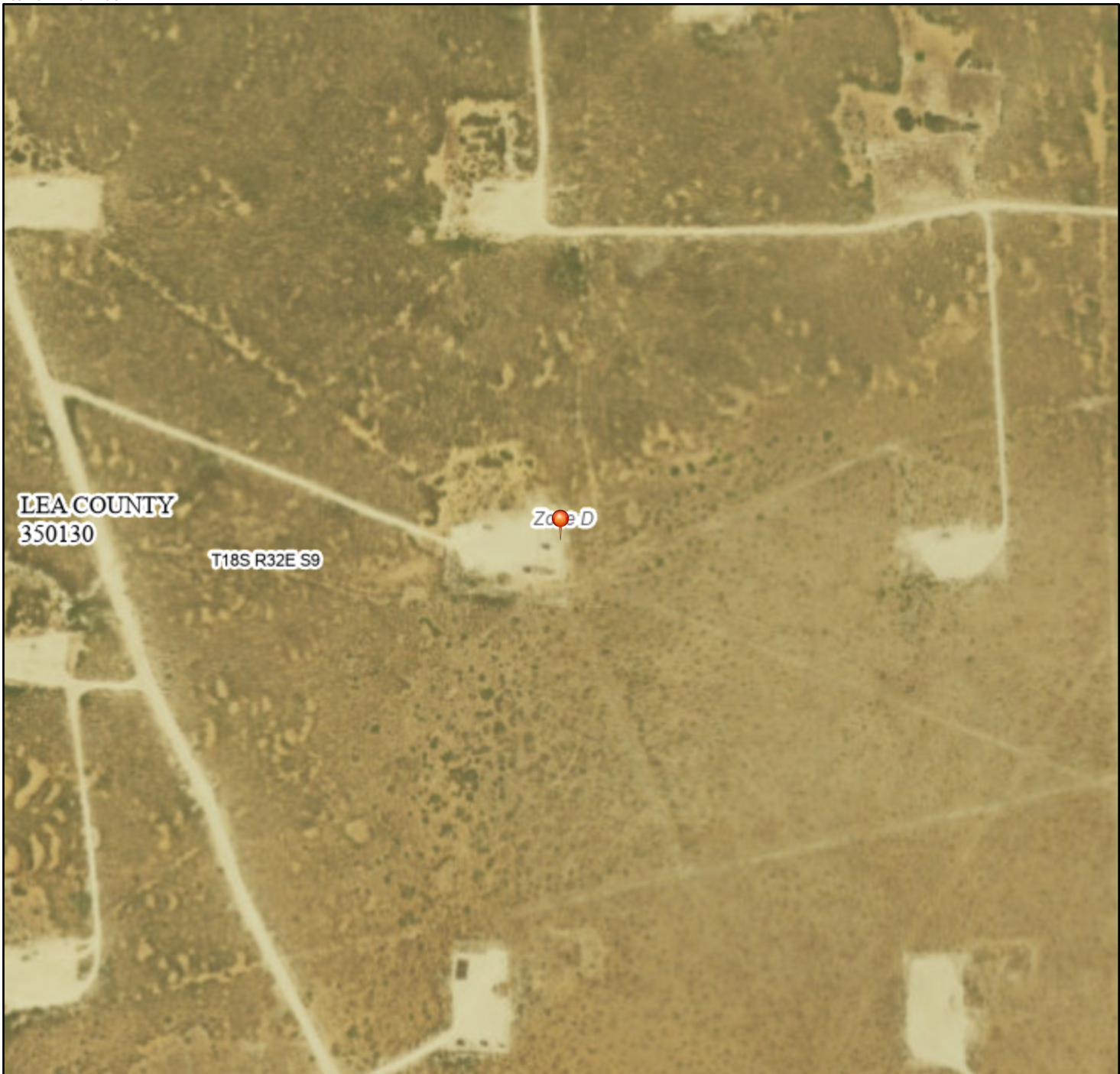
Note: Inset Map, ESRI 20XX; Overview Map: ESRI World Topographic

VERSATILITY. EXPERTISE.

National Flood Hazard Layer FIRMMette



103°46'41"W 32°46'8"N



Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		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
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **3/17/2021 at 9:24 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Soil Map—Lea County, New Mexico



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

3/11/2021
Page 1 of 3

Soil Map—Lea County, New Mexico

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Lea County, New Mexico

Survey Area Data: Version 17, Jun 8, 2020

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.

Soil Map—Lea County, New Mexico

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BH	Berino-Cacique association, hummocky	2.4	44.9%
KM	Kermit soils and Dune land, 0 to 12 percent slopes	2.9	55.1%
Totals for Area of Interest		5.3	100.0%

Map Unit Description: Berino-Cacique association, hummocky---Lea County, New Mexico

Lea County, New Mexico

BH—Berino-Cacique association, hummocky

Map Unit Setting

National map unit symbol: dmpg

Elevation: 3,000 to 4,400 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 10 inches: fine sand

Btk - 10 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 capacity: Moderate (about 8.5 inches)

Map Unit Description: Berino-Cacique association, hummocky---Lea County, New Mexico

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7c

Hydrologic Soil Group: B

Ecological site: R042XC003NM - 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 7 inches: fine sand

Bt - 7 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: 40 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 2.0

Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7c

Hydrologic Soil Group: C

Ecological site: R042XC004NM - Sandy

Hydric soil rating: No

Minor Components**Kermit**

Percent of map unit: 4 percent

Ecological site: R042XC005NM - Deep Sand

Hydric soil rating: No

Maljamar

Percent of map unit: 3 percent

Map Unit Description: Berino-Cacique association, hummocky---Lea County, New Mexico

Ecological site: R077CY028TX - Limy Upland 16-21" PZ

Hydric soil rating: No

Palomas

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Dune land

Percent of map unit: 1 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico

Survey Area Data: Version 17, Jun 8, 2020

Map Unit Description: Kermit soils and Dune land, 0 to 12 percent slopes---Lea County, New Mexico

Lea County, New Mexico

KM—Kermit soils and Dune land, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: dmpx

Elevation: 3,000 to 4,400 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: Not prime farmland

Map Unit Composition

Kermit and similar soils: 46 percent

Dune land: 44 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Dunes

Landform position (two-dimensional): Shoulder, backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear, concave

Across-slope shape: Convex

Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand

C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 5 to 12 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 3 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 capacity: Low (about 3.1 inches)

Map Unit Description: Kermit soils and Dune land, 0 to 12 percent slopes---Lea County, New Mexico

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: R042XC022NM - Sandhills

Hydric soil rating: No

Description of Dune Land**Setting**

Landform: Dunes

Landform position (two-dimensional): Shoulder, backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex, linear, concave

Across-slope shape: Convex

Typical profile

A - 0 to 6 inches: fine sand

C - 6 to 60 inches: fine sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components**Palomas**

Percent of map unit: 3 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Pyote

Percent of map unit: 3 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Wink

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Maljamar

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico

Survey Area Data: Version 17, Jun 8, 2020

Ecological Reference Worksheet

Author(s) / participant(s): John Tunberg,

Contact for lead author : 505-761-4488

Reference site used? Yes/No

No

Date: 2/17/2010 **MLRA:** 42.3 **Ecological Site:** Sandhills This must be verified based on soils and climate (see Ecological Site Description). Current plant community cannot be used to identify the ecological site.

Indicators: For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above and below average years for each community within the reference state, when appropriate & (3) site data. Continue description on separate sheet.

1. Number and extent of rills	There should not be any rills on this site. After wildfires, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances rills may double in number on steeper slopes at the margins of this site after high-intensity summer thunderstorms. Any rills formed should not be long lived or interconnected and should heal rapidly.
2. Presence of water flow patterns:	None or few on slopes less than 5%. Soils have rapid permeability and low runoff potential Water flow patterns should only be present following intense storm events on upper slope limits at the margins of this site. Numerous obstructions alter flow paths. Flow pattern length and numbers may double after wildfires, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances.
3. Number and height of erosional pedestals or terracettes:	There should not be any pedestals and terracettes should be rare. If present plant or rock pedestals and terracettes are almost always in flow patterns. Wind caused pedestals are rare and only would be on the site following after wildfires, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances. These would show signs of healing within 1 year after event.
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground) : Bare ground can make up 45 to 60% of the aerial cover on this site. Bare areas can be large up to a meter in size. Bare areas can be distributed throughout the site with limited connectivity.	
5. Number of gullies and erosion associated with gullies:	There should not be any gullies or erosion associated with gullies on this site. Natural drainages with little to no active cutting are common on this site. There should not be any accelerated erosion. After high-intensity summer thunderstorms or after wildfire, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances then gully formation would be accelerated for a year or two. Evidence of healing within 1 year of event and continuing after that.
6. Extent of wind scoured, blowouts and/or depositional area	Wind scoured, blowouts and/or depositional areas should be rare and associated with disturbances (e.g. small mammal burrows, resting areas). Wind erosion is minimal when the site is in a well vegetated condition. Significant wind erosion would only be present following high-intensity summer thunderstorms, after wildfire, or abnormally high human or herbivore impacts or extended drought or combinations of these disturbances. After rain events, exposed soil surfaces form physical crusts that tend to reduce wind erosion. Deposition from off site sources can be common on this site and is in fact a primary soil forming process. This site is susceptible to wind erosion when vegetation is removed or significantly decreased.
7. Amount of litter movement (describe size and distance expected to travel) : The size of the litter (grass litter) should be small and its movement should be less than 1 meter across bare patches.	
8. Soil surface (top few mm) resistance to erosion (stability) values are averages - most sites will show a range of values for both plant canopy and interspaces, if different) : This site can be susceptible to wind erosion. Stability values are estimated to be 4 to 5 in interspaces at the surface and subsurface and 5 to 6 at bases of vegetation at the surface and subsurface.	
9. Soil surface structures and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different) : A1--0 to 4 inches; yellowish red (5YR 5/6) fine sand, yellowish red (5YR 4/6) moist; single grained with thin bedding planes in upper 2 inches; loose; common very fine roots, very porous; neutral; clear smooth boundary. (3 to 5 inches thick). The SOM content should be less than 1%.	
10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: In a grassland with uniformly distributed grass patches on coarse-textured soils, runoff should be low to nil. Most water infiltrates at the plant bases as well as in the interspaces.	
11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction): There should not be any compaction layers on this site. There are soil profile features in the top 9 inches of the soil profile that would be mistaken for a management induced soil compaction layer. Management induced compaction layers will be more difficult to penetrate than clay lenses.	
12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: indicate much	

greater than (>>) , greater than (>) , and equal to (=) :

Dominants: Harvard panicum = Sand bluestem = giant dropseed > dropseeds > shrubs > warm season mid grasses > Minor Component: Forbs > Shrubs (not and mesquite)

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

Short-lived perennial component can exhibit significant mortality in drought, black grama tends to exhibit mortality only when exposed to drought in addition to other stressors. Shrubs/yucca should exhibit low mortality rates.

14. Average percent litter cover (_____ %) and depth (_____ inches).

20 to 30 % litter cover on this site. Well distributed. Depth of 3/4 inch.

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

(Low Production 600 lbs./ac.) (Average RV Production 975 lbs./ac.) (High Production 1350 lbs./ac.) After wildfires, high herbivore impacts, extended drought, or combinations of these disturbances, can cause production to be significantly reduced (100-200 lbs per ac. the first growing season following a wildfire) and recover slowly under below average precipitation regimes.

16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do , continue to increase regardless of the management of the site and may eventually dominate

Shinnery Oak, Sandsage, lovegrass and Mesquite can be invaders of this site. Invasive plants should not occur in reference plant community. However, lovegrass, Russian thistle, kochia, and other nonnative annuals may initially invade following extended disturbance. Shinnery Oak, Sandsage and Mesquite and lovegrass are the greatest threat to dominate this site in the long term after disturbance (primarily following wildfire exclusion but also includes high human or herbivore impacts and extended drought). Shinnery Oak, Sandsage, lovegrass and Mesquite are most likely to retain dominance if allowed to alter natural fire regime (this alteration may require poor land management combined with years of wet winter-spring; dry summer-fall conditions). Any of these invaded communities represent a departure from the reference state.

17. Perennial plant reproductive capability :

Bluestems and dropseeds reproduces by seed as soil moisture year dictates. The dropseeds should have high reproductive potential and rapidly recover from drought in the absence of additional stresses (grazing).

Young Deep Unit 011

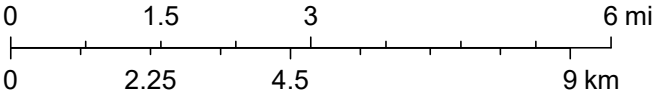


3/17/2021, 7:16:35 AM

Faults

- Fault, Exposed
- - Fault, Intermittent
- Fault, Concealed
- ~~~~ Shere Zone

1:144,448



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, NMBGMR

ATTACHMENT 4



Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	3/11/2021
Site Location Name:	Young Deep Unit 11	Report Run Date:	3/15/2021 1:09 PM
Client Contact Name:	John Hurt	API #:	30-025-28793
Client Contact Phone #:			
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	3/11/2021 8:30 AM
Departed Site	3/11/2021 12:23 PM

Field Notes

- 11:28** Produced water release in pasture area on east side of pad. Check valve failure. Visual staining in pasture. Emergency 811 placed to clean to depth of spill to prevent any further contamination vertically. Soil map and report show very high Ksat at 20 in/hr meaning the longer the release sits the deeper it will travel. Crew coming onsite to dig up contamination
- 12:22** Digging of area to be completed by TCB Oilfield services. Aiming to remove as much contamination as possible within emergency 811

Next Steps & Recommendations

- 1 Complete emergency clean up of spill
- 2 Conduct confirmation sampling

Daily Site Visit Report



Site Photos

Viewing Direction: West



Point of release

Viewing Direction: South



Release area with visual staining

Viewing Direction: East



Stained area

Viewing Direction: North



Stained area



Daily Site Visit Report

Viewing Direction: Northwest



Release area

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

A handwritten signature in black ink, appearing to be 'M. Peppin', written over a thin horizontal line. Below the line, the word 'Signature' is printed in a small font.



Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	3/12/2021
Site Location Name:	Young Deep Unit 11	Report Run Date:	3/15/2021 1:10 PM
Client Contact Name:	John Hurt	API #:	30-025-28793
Client Contact Phone #:			
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	3/12/2021 8:00 AM
Departed Site	3/12/2021 12:42 PM

Field Notes

8:49 Start emergency excavation and determine depth of contamination to find clean

12:17 811 updated to extend in case excavation takes longer

12:41 Second backhoe on site to help move contamination to liner on pad to make it easier to load trucks. Work to continue Monday

Next Steps & Recommendations

1 Finish excavation

Daily Site Visit Report



Site Photos

Viewing Direction: Northeast



Excavation progress

Viewing Direction: Southeast



Excavation progress

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

A handwritten signature in black ink, consisting of a series of loops and peaks, written over a thin horizontal line.

Signature



Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	3/16/2021
Site Location Name:	Young Deep Unit 11	Report Run Date:	3/16/2021 9:50 PM
Client Contact Name:	John Hurt	API #:	30-025-28793
Client Contact Phone #:			
Unique Project ID	-Young Deep Unit 11	Project Owner:	John Hurt
Project Reference #	21E-00087	Project Manager:	Monica Peppin

Summary of Times

Arrived at Site	3/16/2021 8:19 AM
Departed Site	3/16/2021 3:00 PM

Field Notes

- 8:21** Arrived on site, began dfr and filling out safety paperwork
- 10:09** Finish excavation of spill where they stock piled contaminated dirt on.
- 10:41** Expanding excavation by 1' wider and 6" deeper
- 14:39** Expanding excavation an additional 2'. Called it a day due to high winds. Half of the east wall to the south wall will need to be finished excavated.
- 14:41** Barb wire fence put up around excavation
- 14:48** 4 trucks at 12 yards hauled off today, totaling 48 yards.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: Northeast



Excavation of spill area

Viewing Direction: North



Excavation of spill area

Viewing Direction: South



Excavation of remaining soil

Viewing Direction: Northeast



Excavation expansion

Excavation looking north

Daily Site Visit Report



Daily Site Visit Signature

Inspector: John Ramirez

Signature:

Signature 



Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	3/17/2021
Site Location Name:	Young Deep Unit 11	Report Run Date:	3/17/2021 9:47 PM
Client Contact Name:	John Hurt	API #:	30-025-28793
Client Contact Phone #:			
Unique Project ID	-Young Deep Unit 11	Project Owner:	John Hurt
Project Reference #	21E-00087	Project Manager:	Monica Peppin

Summary of Times

Arrived at Site	3/17/2021 8:25 AM
Departed Site	3/17/2021 2:30 PM

Field Notes

- 8:29** Arrived on site, began dfr and filling out safety paperwork
- 14:17** 4 belly dumps hauled off= 80 yards total.
- 14:20** Excavation is completed. And fence has been placed around hole.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: West



Excavation of wall

Viewing Direction: Northwest



Excavation

Viewing Direction: North



Excavation dug to 4.5' deep

Viewing Direction: Southwest



Excavation at 4.5' deep



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: John Ramirez

Signature:


Signature



Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	3/26/2021
Site Location Name:	Young Deep Unit 11	Report Run Date:	3/26/2021 6:26 PM
Client Contact Name:	John Hurt	API #:	30-025-28793
Client Contact Phone #:			
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	3/26/2021 7:56 AM
Departed Site	3/26/2021 11:00 AM

Field Notes

7:58 Arrived on site, filled out safety paperwork and began dfr
8:38 Pulled confirmation samples and ran field screens. 2 base and 4 walls

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: East



Sample area.

Viewing Direction: North



Sample area

Viewing Direction: West



Sample area

Daily Site Visit Report



Daily Site Visit Signature

Inspector: John Ramirez

Signature:

A handwritten signature in black ink, appearing to be 'JR' or similar, written over a horizontal line. The word 'Signature' is printed in small text to the left of the line.

ATTACHMENT 5

Monica Peppin

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Tuesday, March 23, 2021 1:36 PM
To: CFO_Spill, BLM_NM; EMNRD-OCD-District1spills; Monica Peppin; Bratcher, Mike, EMNRD; Griswold, Jim, EMNRD; Enviro, OCD, EMNRD; John Hurt
Subject: nAPP2107445051 48 HR notification of Confirmatory Sampling

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled confirmatory sampled to be conducted at Young Deep Unit #011 for the following release:

nAPP2107445051 DOR: March 11, 2021

On Friday, March 26, 2021 at approximately 8:00 AM, John Ramirez will be onsite to conduct confirmatory sampling while excavation is ongoing and could go into the following week. He can be reached at 575-725-1809, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 575-361-9880.

Thank you,
Monica

Monica Peppin
Project Manager in Training

Vertex Resource Group Ltd.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

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ATTACHMENT 6

Client Name: Matador Resources
 Site Name: Young Deep Unit #011
 NM OCD Incident Tracking #: nAPP2107445051
 Project #: 21E-00087-008
 Lab Report: 2103D38

Table 3. Confirmatory Sampling Laboratory Data Results - Depth to Groundwater > 50 feet										
Sample Description			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable					Chloride
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
BS21-01	4.5'	March 26, 2021	<0.025	<0.222	<4.9	<9.2	<46	<14.1	<60.1	180
BS21-02	4.5'	March 26, 2021	<0.025	<0.221	<4.9	<9.9	<49	<14.8	<63.8	230
BS21-03	4.5'	March 26, 2021	<0.025	<0.221	<4.9	<9.4	<47	<14.3	<61.3	310
WS21-01	0-4.5'	March 26, 2021	<0.025	<0.224	<5.0	<9.8	<49	<14.8	<63.8	<60
WS21-02	0-4.5'	March 26, 2021	<0.025	<0.225	<5.0	<8.9	<44	<13.9	<57.9	<60
WS21-03	0-4.5'	March 26, 2021	<0.025	<0.224	<5.0	<9.4	<47	<14.4	<61.4	230
WS21-04	0-4.5'	March 26, 2021	<0.024	<0.217	<4.8	<8.6	<43	<13.4	<56.4	140

"-" indicates not analyzed/assessed

Bold and shaded indicates exceedance outside of NM OCD Closure Criteria

ATTACHMENT 7



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

April 06, 2021

Monica Peppin

Vertex Resource Group Ltd.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Young Deep Unit 11

OrderNo.: 2103D38

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 7 sample(s) on 3/30/2021 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS21-01 0-4.5'

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:00:00 AM

Lab ID: 2103D38-001

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/2/2021 4:38:41 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/2/2021 4:38:41 PM
Surr: DNOP	105	70-130		%Rec	1	4/2/2021 4:38:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/4/2021 3:20:33 PM
Surr: BFB	100	70-130		%Rec	1	4/4/2021 3:20:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	4/4/2021 3:20:33 PM
Toluene	ND	0.050		mg/Kg	1	4/4/2021 3:20:33 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/4/2021 3:20:33 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/4/2021 3:20:33 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/4/2021 3:20:33 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	ND	60		mg/Kg	20	4/5/2021 11:01:50 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS21-02 0-4.5'

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:05:00 AM

Lab ID: 2103D38-002

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	4/2/2021 4:51:19 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	4/2/2021 4:51:19 PM
Surr: DNOP	82.8	70-130		%Rec	1	4/2/2021 4:51:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/4/2021 4:31:00 PM
Surr: BFB	101	70-130		%Rec	1	4/4/2021 4:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	4/4/2021 4:31:00 PM
Toluene	ND	0.050		mg/Kg	1	4/4/2021 4:31:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/4/2021 4:31:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/4/2021 4:31:00 PM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	4/4/2021 4:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	ND	60		mg/Kg	20	4/5/2021 11:14:15 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS21-03 0-4.5'

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:10:00 AM

Lab ID: 2103D38-003

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/2/2021 5:03:32 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/2/2021 5:03:32 PM
Surr: DNOP	90.6	70-130		%Rec	1	4/2/2021 5:03:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/4/2021 4:54:30 PM
Surr: BFB	100	70-130		%Rec	1	4/4/2021 4:54:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	4/4/2021 4:54:30 PM
Toluene	ND	0.050		mg/Kg	1	4/4/2021 4:54:30 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/4/2021 4:54:30 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/4/2021 4:54:30 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	4/4/2021 4:54:30 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	230	60		mg/Kg	20	4/4/2021 9:40:51 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: WS21-04 0-4.5'

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:15:00 AM

Lab ID: 2103D38-004

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	4/2/2021 5:16:11 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	4/2/2021 5:16:11 PM
Surr: DNOP	87.2	70-130		%Rec	1	4/2/2021 5:16:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/4/2021 5:18:00 PM
Surr: BFB	99.4	70-130		%Rec	1	4/4/2021 5:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	4/4/2021 5:18:00 PM
Toluene	ND	0.048		mg/Kg	1	4/4/2021 5:18:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/4/2021 5:18:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/4/2021 5:18:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/4/2021 5:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	140	60		mg/Kg	20	4/4/2021 10:18:05 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS21-01 4.5

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:30:00 AM

Lab ID: 2103D38-005

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	4/2/2021 4:01:12 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/2/2021 4:01:12 PM
Surr: DNOP	85.0	70-130		%Rec	1	4/2/2021 4:01:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/4/2021 5:41:29 PM
Surr: BFB	97.4	70-130		%Rec	1	4/4/2021 5:41:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	4/4/2021 5:41:29 PM
Toluene	ND	0.049		mg/Kg	1	4/4/2021 5:41:29 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/4/2021 5:41:29 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/4/2021 5:41:29 PM
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	4/4/2021 5:41:29 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	180	60		mg/Kg	20	4/4/2021 10:55:19 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS21-02 4.5

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:35:00 AM

Lab ID: 2103D38-006

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/2/2021 5:28:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/2/2021 5:28:52 PM
Surr: DNOP	83.6	70-130		%Rec	1	4/2/2021 5:28:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/4/2021 6:04:55 PM
Surr: BFB	100	70-130		%Rec	1	4/4/2021 6:04:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	4/4/2021 6:04:55 PM
Toluene	ND	0.049		mg/Kg	1	4/4/2021 6:04:55 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/4/2021 6:04:55 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/4/2021 6:04:55 PM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	4/4/2021 6:04:55 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	230	60		mg/Kg	20	4/4/2021 11:07:44 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

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Analytical Report

Lab Order 2103D38

Date Reported: 4/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd.

Client Sample ID: BS21-03 4.5

Project: Young Deep Unit 11

Collection Date: 3/26/2021 9:40:00 AM

Lab ID: 2103D38-007

Matrix: SOIL

Received Date: 3/30/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/2/2021 5:41:38 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/2/2021 5:41:38 PM
Surr: DNOP	90.2	70-130		%Rec	1	4/2/2021 5:41:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/4/2021 6:28:21 PM
Surr: BFB	99.6	70-130		%Rec	1	4/4/2021 6:28:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	4/4/2021 6:28:21 PM
Toluene	ND	0.049		mg/Kg	1	4/4/2021 6:28:21 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/4/2021 6:28:21 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/4/2021 6:28:21 PM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	4/4/2021 6:28:21 PM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	310	60		mg/Kg	20	4/4/2021 11:44:58 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	Value above quantitation range
	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2103D38

06-Apr-21

Client: Vertex Resource Group Ltd.**Project:** Young Deep Unit 11

Sample ID: MB-59192	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 59192	RunNo: 76440								
Prep Date: 4/4/2021	Analysis Date: 4/4/2021	SeqNo: 2707615 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-59192	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 59192	RunNo: 76440								
Prep Date: 4/4/2021	Analysis Date: 4/4/2021	SeqNo: 2707616 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2103D38

06-Apr-21

Client: Vertex Resource Group Ltd.**Project:** Young Deep Unit 11

Sample ID: MB-59133	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 59133	RunNo: 76411								
Prep Date: 4/1/2021	Analysis Date: 4/2/2021	SeqNo: 2707609 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	9.6		10.00		95.8	70	130			

Sample ID: LCS-59133	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 59133	RunNo: 76411								
Prep Date: 4/1/2021	Analysis Date: 4/2/2021	SeqNo: 2707610 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	106	68.9	141			
Surr: DNOP	4.7		5.000		94.6	70	130			

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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2103D38

06-Apr-21

Client: Vertex Resource Group Ltd.**Project:** Young Deep Unit 11

Sample ID: mb-59076	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 59076			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707085	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.3	70	130			

Sample ID: lcs-59076	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 59076			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707086	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		111	70	130			

Sample ID: mb-59086	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 59086			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707109	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		101	70	130			

Sample ID: lcs-59086	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 59086			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707110	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		110	70	130			

Sample ID: mb-59093	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 59093			RunNo: 76428						
Prep Date: 3/31/2021	Analysis Date: 4/4/2021			SeqNo: 2707133	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	1000		1000		99.6	70	130			

Sample ID: lcs-59093	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 59093			RunNo: 76428						
Prep Date: 3/31/2021	Analysis Date: 4/4/2021			SeqNo: 2707134	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.6	78.6	131			
Surr: BFB	1100		1000		110	70	130			

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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2103D38

06-Apr-21

Client: Vertex Resource Group Ltd.**Project:** Young Deep Unit 11

Sample ID: mb-59076	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 59076			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707167			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Sample ID: LCS-59076	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 59076			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707168			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Sample ID: mb-59086	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 59086			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707198			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: LCS-59086	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 59086			RunNo: 76428						
Prep Date: 3/30/2021	Analysis Date: 4/3/2021			SeqNo: 2707201			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: mb-59093	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 59093			RunNo: 76428						
Prep Date: 3/31/2021	Analysis Date: 4/4/2021			SeqNo: 2707225			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	0.99		1.000		99.4	70	130			

Sample ID: LCS-59093	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 59093			RunNo: 76428						
Prep Date: 3/31/2021	Analysis Date: 4/4/2021			SeqNo: 2707226			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.4	80	120			

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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2103D38

06-Apr-21

Client: Vertex Resource Group Ltd.**Project:** Young Deep Unit 11

Sample ID: LCS-59093	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 59093	RunNo: 76428								
Prep Date: 3/31/2021	Analysis Date: 4/4/2021	SeqNo: 2707226 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	0.94	0.050	1.000	0	93.8	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.8	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.6	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	70	130			

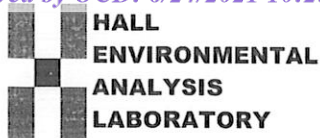
Sample ID: 2103d38-001ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: WS21-01 0-4.5'	Batch ID: 59093	RunNo: 76428								
Prep Date: 3/31/2021	Analysis Date: 4/4/2021	SeqNo: 2707229 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9911	0	94.1	76.3	120			
Toluene	0.95	0.050	0.9911	0	95.6	78.5	120			
Ethylbenzene	0.94	0.050	0.9911	0	94.7	78.1	124			
Xylenes, Total	2.8	0.099	2.973	0	94.0	79.3	125			
Surr: 4-Bromofluorobenzene	1.0		0.9911		102	70	130			

Sample ID: 2103d38-001amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: WS21-01 0-4.5'	Batch ID: 59093	RunNo: 76428								
Prep Date: 3/31/2021	Analysis Date: 4/4/2021	SeqNo: 2707230 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.024	0.9533	0	94.0	80	120	3.96	20	
Toluene	0.91	0.048	0.9533	0	95.5	80	120	3.97	20	
Ethylbenzene	0.91	0.048	0.9533	0	95.4	80	120	3.14	20	
Xylenes, Total	2.7	0.095	2.860	0	95.3	80	120	2.56	20	
Surr: 4-Bromofluorobenzene	0.97		0.9533		102	70	130	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 Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



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

Sample Log-In Check List

Client Name: **Vertex Resource Group Ltd.**

Work Order Number: **2103D38**

RcptNo: 1

Received By: **Juan Rojas**

3/30/2021 7:35:00 AM

Juan Rojas

Completed By: **Sean Livingston**

3/30/2021 8:25:20 AM

Sean Livingston

Reviewed By:

JR 3/30/21

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 $>0^{\circ}\text{C}$ 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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
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 ☐

of preserved
bottles checked
for pH:

(≤ 2 or >12 unless noted)

Adjusted? _____

Checked by: _____

IO
3/30/21

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: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good				
2	0.5	Good				
3	0.9	Good				

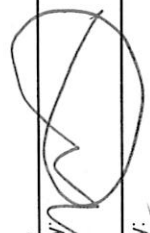



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Chain-of-Custody Record									
Client: <u>Vertex</u>		Turn-Around Time: <u>5 day</u>							
		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush							
		Project Name: _____							
Mailing Address: <u>on file</u>		Project #: <u>Young deep unit 11</u>							
		Project #: <u>21E-00087</u>							
Phone #: _____		Project Manager: <u>Nonica Beppin</u>							
email or Fax#: _____		Sampler: <u>JR</u>							
QA/QC Package:		<input type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation)							
Accreditation: <input type="checkbox"/> Az Compliance		<input type="checkbox"/> NELAC <input type="checkbox"/> Other _____							
<input type="checkbox"/> EDD (Type) _____		<input type="checkbox"/> On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
		# of Coolers: <u>3</u>							
		Cooler Temp (including CF): <u>See Remarks</u> (°C)							
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.			
3-26	9:00	Soil	WSA1-01 0-4.5"	402	ice	2103D38	001		
	9:05		WSA1-02				002		
	9:10		WSA1-03				003		
	9:15		WSA1-04				004		
	9:30		WSA1-01 4.5				005		
	9:35		WSA1-02				006		
	9:40		WSA1-03				007		
Date:	Time:	Relinquished by: 		Received by: 		Date:		Time	
3/29/21	1300					3/29/21		1300	
Date:	Time:	Relinquished by: 		Received by: 		Date:		Time	
3/29/21	1900					3/30/21		7300	

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 33533

CONDITIONS

Operator: MATADOR PRODUCTION COMPANY One Lincoln Centre Dallas, TX 75240	OGRID: 228937
	Action Number: 33533
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	7/16/2021