

Volume Calculation

Location: Hightower State Unit #2

Fluid: Oil

Area: 5,000 (ft²)

Depth: 6.75 (in)

Porosity/Saturation: 0.03 %

Volume of oil released: 15.0 bbls

Volume of water released: 0.0 bbls

Volume of oil recovered: 10 bbls

Volume of water recovered: 0 bbls

Volume of liquid remaining in soil: 5.0 bbls

Volume recovered: 10 bbls

Total Volume: 15.0 bbls



Remediation Summary and Closure Request

Murchison Oil & Gas, LLC

Hightower State Unit #2

Lea County, New Mexico

Unit Letter "J", Section 27, Township 12 South, Range 33 East

Latitude 33.248184 North, Longitude 103.598640 West

NMOCD Incident # nAPP2410253099

Prepared For:

Murchison Oil & Gas
5325 Sierra Vista
Carlsbad, NM 88230

Prepared By:

Hungry Horse, LLC
4024 Plains Hwy
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August 2024

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Table Of Contents

Background	1
NMOCD Site Classification	1
Delineation and Remediation Activities	2
Sampling Procedure and Identification	3
Restoration, Reclamation, and Re-Vegetation	3
Closure Request	3
Limitations	4
Distribution	5

Figures

- Figure 1 – Topographic Map
- Figure 2 – OSE POD Locations Map
- Figure 3 – USGS Well Locations Map
- Figure 4 – Delineation Sample Map
- Figure 5 – Excavation Sample Map

Tables

- Table 1 – Summary of Soil Sample Laboratory Analytical Results

Attachments

- Attachment I – Karst, Wetland, and Soil Maps
- Attachment II – NMOCD Correspondence
- Attachment III – Site Photographs
- Attachment IV – Depth to Groundwater
- Attachment V – Field Data
- Attachment VI – Laboratory Analytical Reports



HUNGRY HORSE, LLC

The following *Remediation Summary and Closure Request* serves as a condensed update on field activities undertaken at the afore referenced Site.

Background:

The site is located in Unit Letter J (NW/SE), Section 27, Township 12 South, Range 33 East, approximately 16 miles West of Tatum, in Lea County, New Mexico. The property is located on New Mexico State Trust Land. Topographic Map, OSE POD Locations Map, and USGS Well Locations Map are included as Figure 1, Figure 2, and Figure 3, respectively.

The release occurred on an active well pad; Latitude 33.248184 North, Longitude 103.598640 West. The NMOCD Form C-141 indicated that on April 11, 2024, equipment failure caused the release of approximately fifteen bbls of crude oil. Approximately ten bbls of crude oil were recovered. Previously submitted NMOCD Form C-141 is available on the NMOCD Permitting Portal.

NMOCD Site Classification:

A search of the New Mexico Office of the State Engineer (NMOSE) and United States Geological Survey (USGS) groundwater databases was completed in an effort to determine the horizontal distance to known water sources within a half mile radius of the Release Site. Approximate depth to groundwater was determined using maintained and published water well data. Karst mapping indicates the site is located in an Erosional Karst designated area. Depth to groundwater information is provided as Attachment IV and the results are depicted on Figures 2 and 3.

One water well is located within a half mile of the release area, USGS well 331450103353401 which lists a depth to groundwater at 79.47 feet bgs. However, as the site is located in an Erosional Karst designated area, the site will be remediated according to the strictest NMOCD Closure Criteria. Utilizing this information, the NMOCD Closure Criteria for the Site were determined as follows:

Depth to Groundwater	Constituent	Method	Limit
50'-100'	Chloride	EPA 300.0 or SM4500 CLB	600 mg/kg
	TPH (GRO + DRO + MRO)	EPA SW-846 Method 8015M Ext	100 mg/kg
	BTEX	EPA SW-846 Methods 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Methods 8021B or 8260B	10 mg/kg

A United States Department of Agriculture (USDA) Web Soil Survey was completed to determine soil types in the area of reclamation. Web Soil Survey indicates the area is located in the Kimbrough-Lea complex comprised of gravelly loam and loam soils with 0 to 3 percent slopes. As the release occurred on an active well pad, no seeding will be required. Karst, Wetland, and Soil Maps are provided as Attachment I.



Delineation and Remediation Activities:

On April 16, 2024, Hungry Horse conducted an initial site assessment consisting of photographing and mapping the release area. On April 29, 2024, delineation sampling was conducted. During sampling, hand augered test bores were advanced throughout the affected area in an effort to determine the vertical extent of contamination. These sample locations are identified by SP designation. In addition, hand augered sample bores were advanced along the outside edges of the affected area in an effort to determine the horizontal extent of contamination. These sample locations are identified by HZ designation. During the advancement of the hand augered sample bores, soil samples were collected and field screened for the presence of chloride concentrations utilizing a Hach Quantab® chloride test kit.

Based on field observations and field test data noted above and provided in Attachment V, eleven representative soil samples were selected for laboratory analysis. Delineation soil samples SP1 through SP3, and HZ1 through HZ4, were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated contaminant concentrations were below the NMOCD Closure Criteria in each of the submitted samples, with the exception of SP1, SP2, and SP3, each at Surface, which exhibited TPH and/or chloride concentrations in excess of NMOCD Closure Criteria.

On May 30, 2024, delineation sampling was completed. Delineation soil samples SP1 at three feet bgs, SP2 at three feet bgs, and SP3 at two feet bgs, were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated contaminant concentrations were below the NMOCD Closure Criteria in each of the submitted samples, with the exception of SP1 at three feet bgs, and SP3, at two feet bgs, which exhibited TPH concentrations in excess of NMOCD Closure Criteria

From June 10 through 14, 2024, the release area was excavated. Excavated contaminated soil was temporarily stockpiled onsite, within the excavated area, before transport to an NMOCD approved disposal facility. On June 24, 2024, Hungry Horse, LLC notified NMOCD that closure samples would be collected on June 27, 2024. Correspondence is provided as Attachment II.

On June 27, 2024, twenty-nine composite confirmation soil samples were collected from the excavation floor and sidewalls, with each sample representing no more than 200 square feet. Soil samples FL1 through FL24 and SW1 through SW5, were submitted to the laboratory for analysis of BTEX, TPH, and chloride. Laboratory analytical results indicated contaminant concentrations were below the NMOCD Closure Criteria in each of the submitted samples.

The affected area measured approximately four thousand eight hundred square feet, and one to five feet in depth. During remediation activities approximately 240 cubic yards of impacted soil were excavated and hauled to an NMOCD approved disposal facility.

A Delineation Sample Map and Excavation Sample Map are provided as Figure 4 and Figure 5, respectively. A Summary of Soil Sample Laboratory Analytical Results is provided as Table 1 and Laboratory Analytical Reports are provided as Attachment VI.



Sampling Procedure and Identification:

During confirmation sampling, five-point composite soil samples were collected from the floor of the excavation, each collected sample representing an area no greater than 200 square feet. These sample locations are identified by FL designation. Five-point composite soil samples were also collected from the sidewalls of the excavation, each collected sample representing an area no greater than 200 square feet. These sample locations are identified by SW designation.

Excavation sidewall samples were collected from the perimeter sidewall of the excavation, measured at 327 feet in length and one-foot in depth. Sidewall samples SW1 through SW5 were collected as five-point composite samples from the excavation surface to the excavation floor and ranged in depths from surface to one-foot bgs. Due to the narrow nature of the perimeter sidewall, the composite sample area is approximately sixty-five feet in length.

The Excavation Sample Map, provided as Figure 5, has been updated to more accurately depict sidewall sample boundaries. Site Photographs, provided as Attachment III, have also been updated to identify sidewall sample locations.

Excavation floor samples FL1, FL2, FL3, FL4, FL5, FL6, FL8, FL9, FL10, FL11, FL16, FL17, FL20, FL21 were all collected at approximately one-foot bgs. Due the excavation sloping into the cellar area, floor sample FL15 represents an area ranging in depth from approximately one to three feet bgs. Also due to the slope of the excavation, floor samples FL7, FL12, FL13, FL14, FL18, FL19, FL22, FL23, and FL24, represent the deeper portions of the excavation; areas ranging in depth from approximately one to five feet bgs. Due to the cellar remaining in place, the sample areas around the unexcavated cellar, floor samples FL14, FL22, FL23, and FL24, represent more of a sidewall sample than a floor sample. The entirety of the excavation was characterized during closure sampling and sampling activities were conducted according to NMOCD regulations.

Restoration, Reclamation, and Re-Vegetation:

Based upon laboratory analytical results from confirmation soil samples, the excavation was backfilled with locally sourced, clean, non-impacted caliche. The area was contoured to achieve erosion control and preserve surface water flow. As the release occurred on an active well pad, no seeding will be required.

Closure Request:

Remediation activities were conducted in accordance with applicable NMOCD Regulations. Soil affected above the NMOCD Closure Criteria has been excavated and hauled to an NMOCD approved facility for disposal. Laboratory analytical results from composite confirmation samples indicate concentrations of BTEX, TPH, and chloride are below the NMOCD Closure Criteria.

Based on laboratory analytical results, Murchison Oil & Gas, LLC respectfully requests closure of the Hightower State Unit #2 location, nAPP2410253099.



Limitations:

Hungry Horse, LLC, has prepared this *Remediation Summary and Closure Request* to the best of its ability. No other warranty, expressed or implied, is made or intended. Hungry Horse has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Hungry Horse has not conducted an independent examination of the facts contained in referenced materials and statements. Hungry Horse has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Hungry Horse notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.



Distribution:

Murchison Oil & Gas

5325 Sierra Vista
Carlsbad, NM 88230

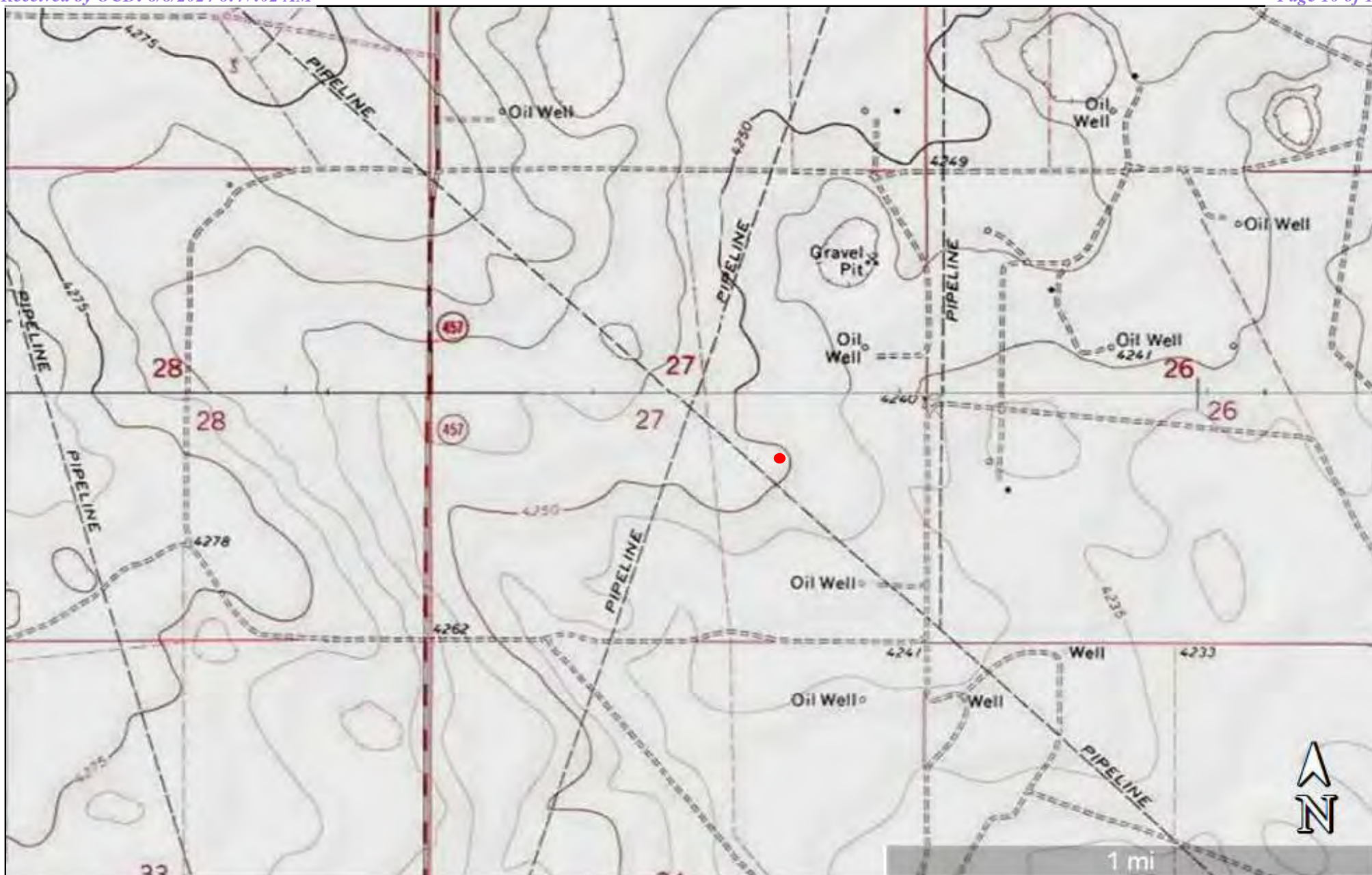
New Mexico Energy, Minerals and Natural Resources Department

Oil Conservation Division, District 2
811 S. First St.
Artesia, NM 88210

New Mexico State Land Office

602 N. Canal. Suite B
Carlsbad, NM 88220

Figures

**Figure 1**

Topographic Map
 Murchison Oil & Gas
 Hightower State Unit #2
 GPS: 33.248184, -103.59864
 Lea County

Legend:

- Hightower State Unit #2 Location

Drafted: dd
 Checked: bw
 Date: 5/6/24



**Figure 2**

OSE POD Locations Map
Murchison Oil & Gas
Hightower State Unit #2
GPS: 33.248184, -103.59864
Lea County

Legend:

- Hightower State Unit #2 Location

Drafted: dd
Checked: bw
Date: 5/6/24



**Figure 3**

USGS Well Locations Map
Murchison Oil & Gas
Hightower State Unit #2
GPS: 33.248184, -103.59864
Lea County

Legend:

- Hightower State Unit #2 Location
- USGS Well Location



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Date: 5/6/24



**Figure 4**

Delineation Sample Map
Murchison Oil & Gas
Hightower State Unit #2
GPS: 33.248184, -103.59864
Lea County

Legend:

-  Release Area
 Delineation Sample Location

Drafted: dd
Checked: bw
Date: 5/6/24



**Figure 5**

Excavation Sample Map
 Murchison Oil & Gas
 Hightower State Unit #2
 GPS: 33.248184, -103.59864
 Lea County

Legend:

Composite Confirmation Sample 200 Square Foot Area



Composite Confirmation Sample Location

— SW1 Sample Boundary

— SW2 Sample Boundary

— SW3 Sample Boundary

— SW4 Sample Boundary

— SW5 Sample Boundary



Drafted: dd

Checked: bw

Date: 7/29/24

Table

TABLE 1
Summary of Soil Sample Laboratory Analytical Results
Murchison Oil & Gas
Hightower State Unit #2
NMOCD Ref. #: nAPP2410253099

Sample ID	Date	Depth (ft)	Soil Status	Benzene (mg/kg)	BTEX (mg/kg)	GRO C ₆ -C ₁₀ (mg/kg)	DRO C ₁₀ -C ₂₈ (mg/kg)	GRO + DRO C ₆ -C ₂₈ (mg/kg)	ORO C ₂₈ -C ₃₆ (mg/kg)	TPH C ₆ -C ₃₆ (mg/kg)	Chloride (mg/kg)
SP1	4/29/24	Surf	Excavated	0.712	55.9	1,140	13,500	14,640	2,820	17,460	832
	5/30/24	3	Excavated	<0.050	<0.300	<10.0	165	165	23.2	188.2	288
SP2	4/29/24	Surf	Excavated	1.81	144	2,440	10,300	12,740	1,730	14,470	624
	5/30/24	3	In-Situ	<0.050	<0.300	<10.0	16.5	<20.0	<10.0	<30.0	80.0
SP3	4/29/24	Surf	Excavated	0.571	108	1,720	6,850	8,570	918	9,488	608
	5/30/24	2	Excavated	<0.050	<0.300	<10.0	117	117	15.6	132.6	160
HZ1	4/29/24	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
	4/29/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
HZ2	4/29/24	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
	4/29/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
HZ3	4/29/24	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	16.0
	4/29/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
HZ4	4/29/24	Surf	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
	4/29/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	16.0
NMOCD Closure Criteria				10	50	-	-	N/A	-	100	600

NOTES:

- = Sample not analyzed for that constituent.

Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

TABLE 1
Summary of Soil Sample Laboratory Analytical Results
Murchison Oil & Gas
Hightower State Unit #2
NMOCD Ref. #: nAPP2410253099

Sample ID	Date	Depth (ft)	Soil Status	Benzene (mg/kg)	BTEX (mg/kg)	GRO C ₆ -C ₁₀ (mg/kg)	DRO C ₁₀ -C ₂₈ (mg/kg)	GRO + DRO C ₆ -C ₂₈ (mg/kg)	ORO C ₂₈ -C ₃₆ (mg/kg)	TPH C ₆ -C ₃₆ (mg/kg)	Chloride (mg/kg)
FL1	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
FL2	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
FL3	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
FL4	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
FL5	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
FL6	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
FL7	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
FL8	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	32.0
FL9	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
FL10	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
FL11	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL12	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL13	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	64.0
FL14	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL15	6/27/24	1-3	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL16	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL17	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
FL18	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL19	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL20	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL21	6/27/24	1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
FL22	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL23	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
FL24	6/27/24	1-5	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
SW1	6/27/24	0-1	In-Situ	<0.050	<0.300	<10.0	13.5	<20.0	<10.0	<30.0	432
SW2	6/27/24	0-1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	48.0
SW3	6/27/24	0-1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	384
SW4	6/27/24	0-1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	448
SW5	6/27/24	0-1	In-Situ	<0.050	<0.300	<10.0	<10.0	<20.0	<10.0	<30.0	80.0
NMOCD Closure Criteria				10	50	-	-	N/A	-	100	600

NOTES:

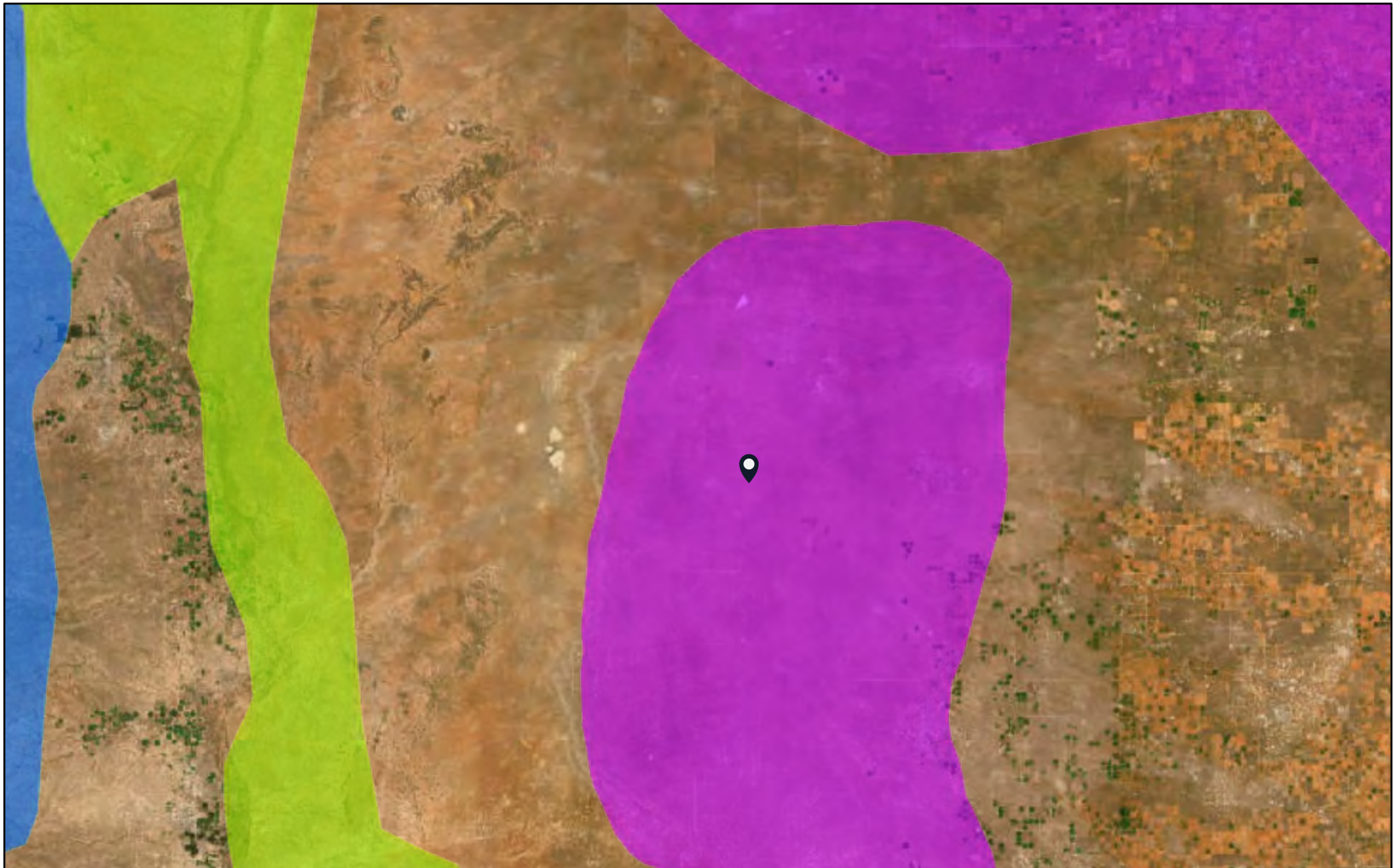
- = Sample not analyzed for that constituent.

Bold text denotes a concentration that exceeds the NMOCD Closure Criteria

Attachment I

Karst, Wetland, and Soil Maps

Hightower State Unit #2



5/6/2024

Karst Type

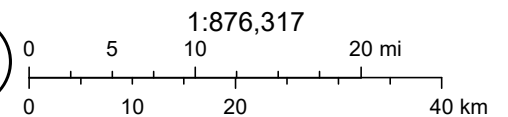
- Carbonate
- Erosional
- Gypsum

- Volcanic
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

150m Resolution Metadata



U.S. Geological Survey Open-File Report 2004-1352, Caves and Karst in the
U.S. National Park Service, AGI Karst Map of the US., Earthstar Geographics



Hightower State Unit 2



May 17, 2024

Wetlands

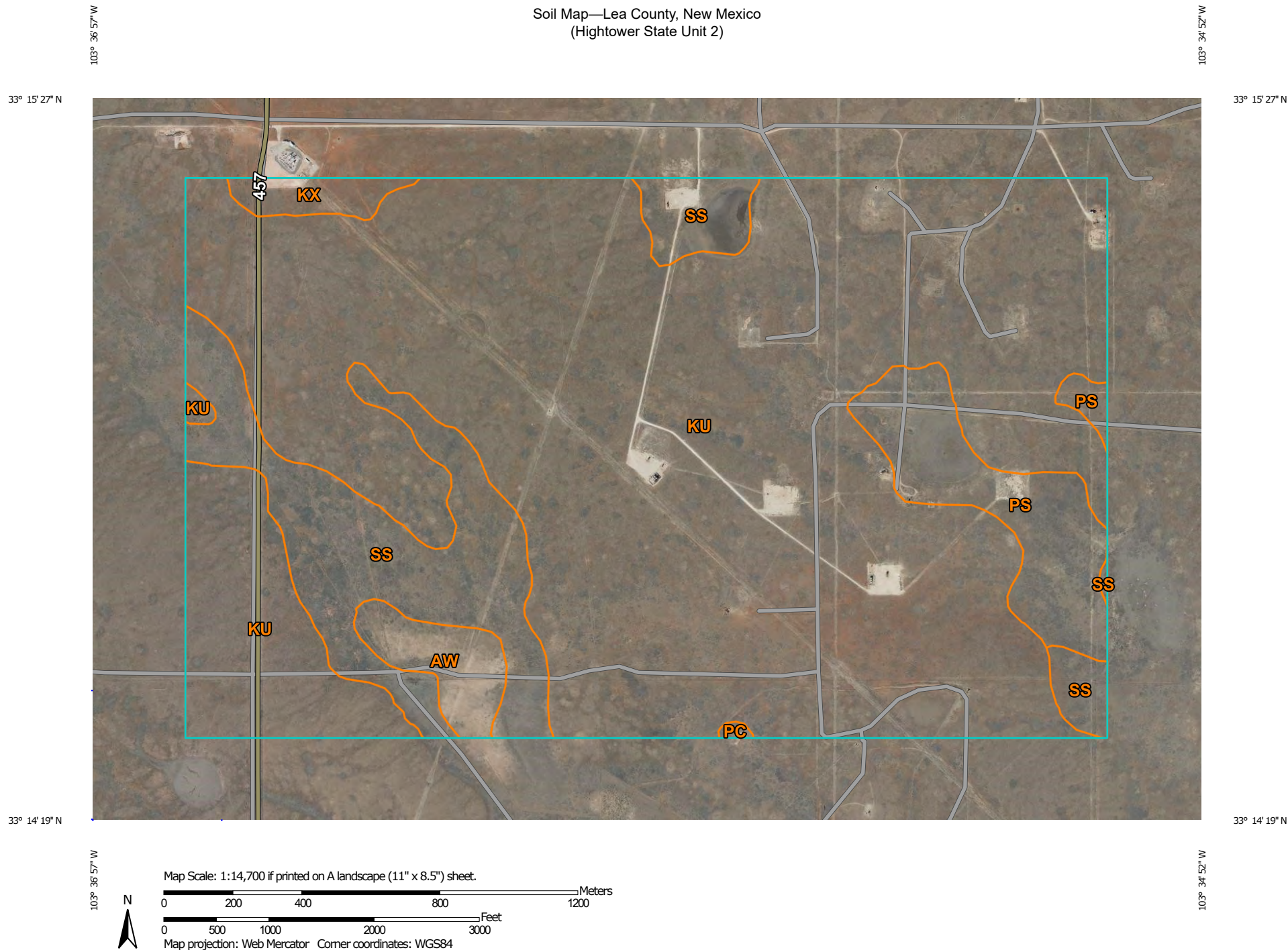
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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

- Lake
- Other
- Riverine

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


Soil Map—Lea County, New Mexico
(Hightower State Unit 2)



Soil Map—Lea County, New Mexico
(Hightower State Unit 2)


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.

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 20, Sep 6, 2023

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

Date(s) aerial images were photographed: Feb 5, 2021—Feb 8, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AW	Arvana-Lea association	22.5	2.1%
KU	Kimbrough-Lea complex, dry, 0 to 3 percent slopes	838.0	77.9%
KX	Kimbrough-Spraberry complex, dry, 0 to 3 percent slopes	12.1	1.1%
PC	Portales loam, 0 to 3 percent slopes	0.9	0.1%
PS	Portales-Stegall loams	63.6	5.9%
SS	Stegall and Slaughter soils	138.5	12.9%
Totals for Area of Interest		1,075.7	100.0%

Map Unit Description: Kimbrough-Lea complex, dry, 0 to 3 percent slopes---Lea County, New Mexico

Hightower State Unit 2

Lea County, New Mexico

KU—Kimbrough-Lea complex, dry, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tw46

Elevation: 2,500 to 4,800 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 57 to 63 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Not prime farmland

Map Unit Composition

Kimbrough and similar soils: 45 percent

Lea and similar soils: 25 percent

Minor components: 30 percent

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

Description of Kimbrough

Setting

Landform: Playa rims, plains

Down-slope shape: Convex, linear

Across-slope shape: Concave, linear

Parent material: Loamy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 3 inches: gravelly loam

Bw - 3 to 10 inches: loam

Bkkm1 - 10 to 16 inches: cemented material

Bkkm2 - 16 to 80 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 4 to 18 inches to petrocalcic

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 95 percent

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

Sodium adsorption ratio, maximum: 1.0

Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Map Unit Description: Kimbrough-Lea complex, dry, 0 to 3 percent slopes---Lea County, New Mexico

Hightower State Unit 2

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Description of Lea

Setting

Landform: Plains
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Calcareous, loamy eolian deposits from the blackwater draw formation of pleistocene age over indurated caliche of pliocene age

Typical profile

A - 0 to 10 inches: loam
Bk - 10 to 18 inches: loam
Bkk - 18 to 26 inches: gravelly fine sandy loam
Bkkm - 26 to 80 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 22 to 30 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: 90 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 3.0
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R077DY047TX - Sandy Loam 12-17" PZ
Hydric soil rating: No

Minor Components

Kenhill

Percent of map unit: 12 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R077DY038TX - Clay Loam 12-17" PZ
Hydric soil rating: No

Map Unit Description: Kimbrough-Lea complex, dry, 0 to 3 percent slopes---Lea County, New Mexico

Hightower State Unit 2

Douro

Percent of map unit: 12 percent

Landform: Plains

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R077DY047TX - Sandy Loam 12-17" PZ

Other vegetative classification: Unnamed (G077DH000TX)

Hydric soil rating: No

Spraberry

Percent of map unit: 6 percent

Landform: Playa rims, plains

Down-slope shape: Convex, linear

Across-slope shape: Linear

Ecological site: R077DY049TX - Very Shallow 12-17" PZ

Other vegetative classification: Unnamed (G077DH000TX)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico

Survey Area Data: Version 20, Sep 6, 2023

Attachment II NMOCD Correspondence

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

QUESTIONS

Action 356846

QUESTIONS

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID: 15363
	Action Number: 356846
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2410253099
Incident Name	NAPP2410253099 HIGHTOWER STATE UNIT 2 @ 30-025-38605
Incident Type	Oil Release
Incident Status	Initial C-141 Approved
Incident Well	[30-025-38605] HIGHTOWER STATE UNIT #002

Location of Release Source	
Site Name	Hightower State Unit 2
Date Release Discovered	04/11/2024
Surface Owner	State

Sampling Event General Information	
Please answer all the questions in this group.	
What is the sampling surface area in square feet	4,800
What is the estimated number of samples that will be gathered	29
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	06/27/2024
Time sampling will commence	08:00 AM
Please provide any information necessary for observers to contact samplers	Roy Bell 575-626-8959
Please provide any information necessary for navigation to sampling site	33.248151, -103.598573



SIGN-IN HELP

Searches Operator Data Hearing Fee Application

OCD Permitting

Home Error Notification

An Unexpected Error Has Occurred

Please restart your browser and try to complete this action again. If you continue to experience this issue please contact an OCD representative.
Thank you.

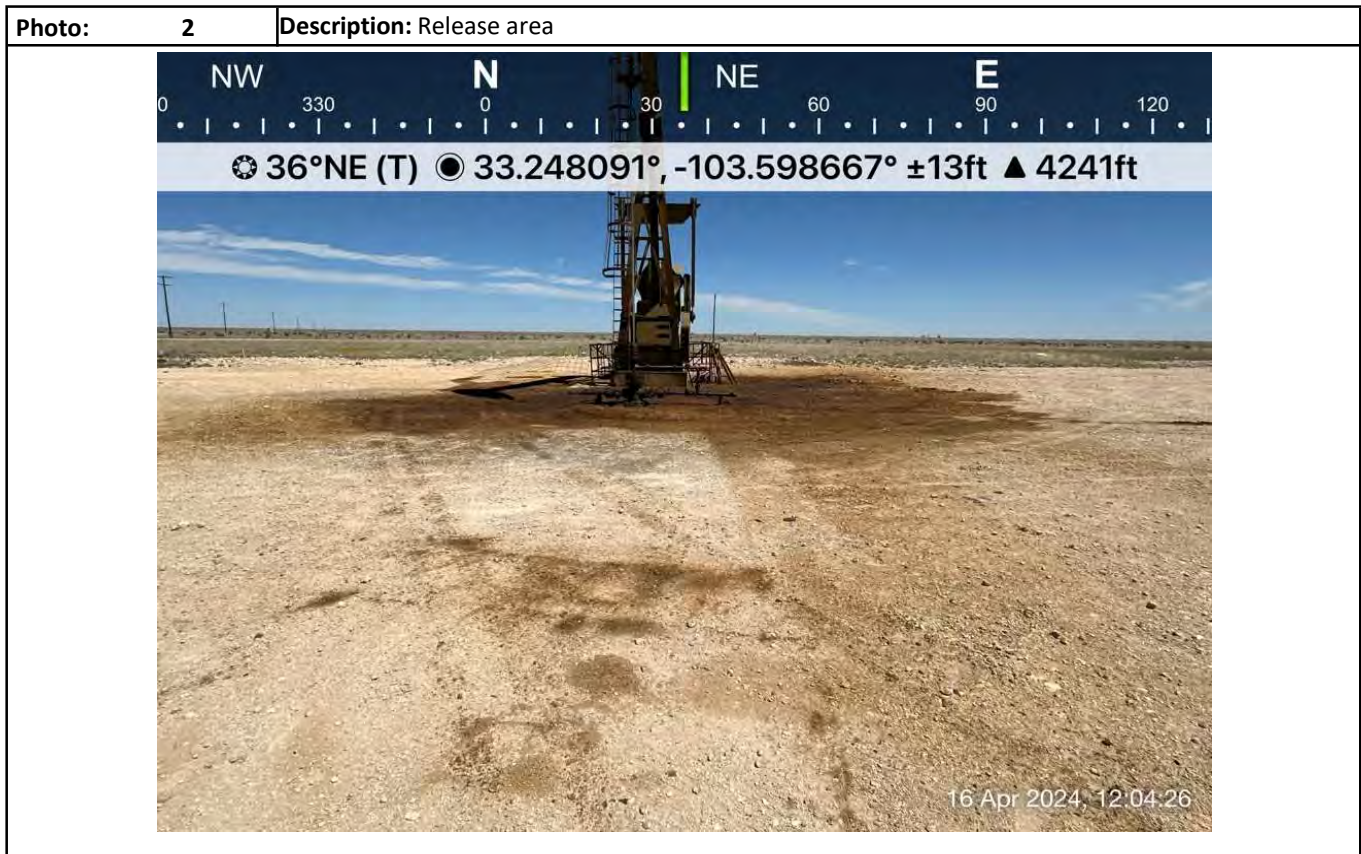
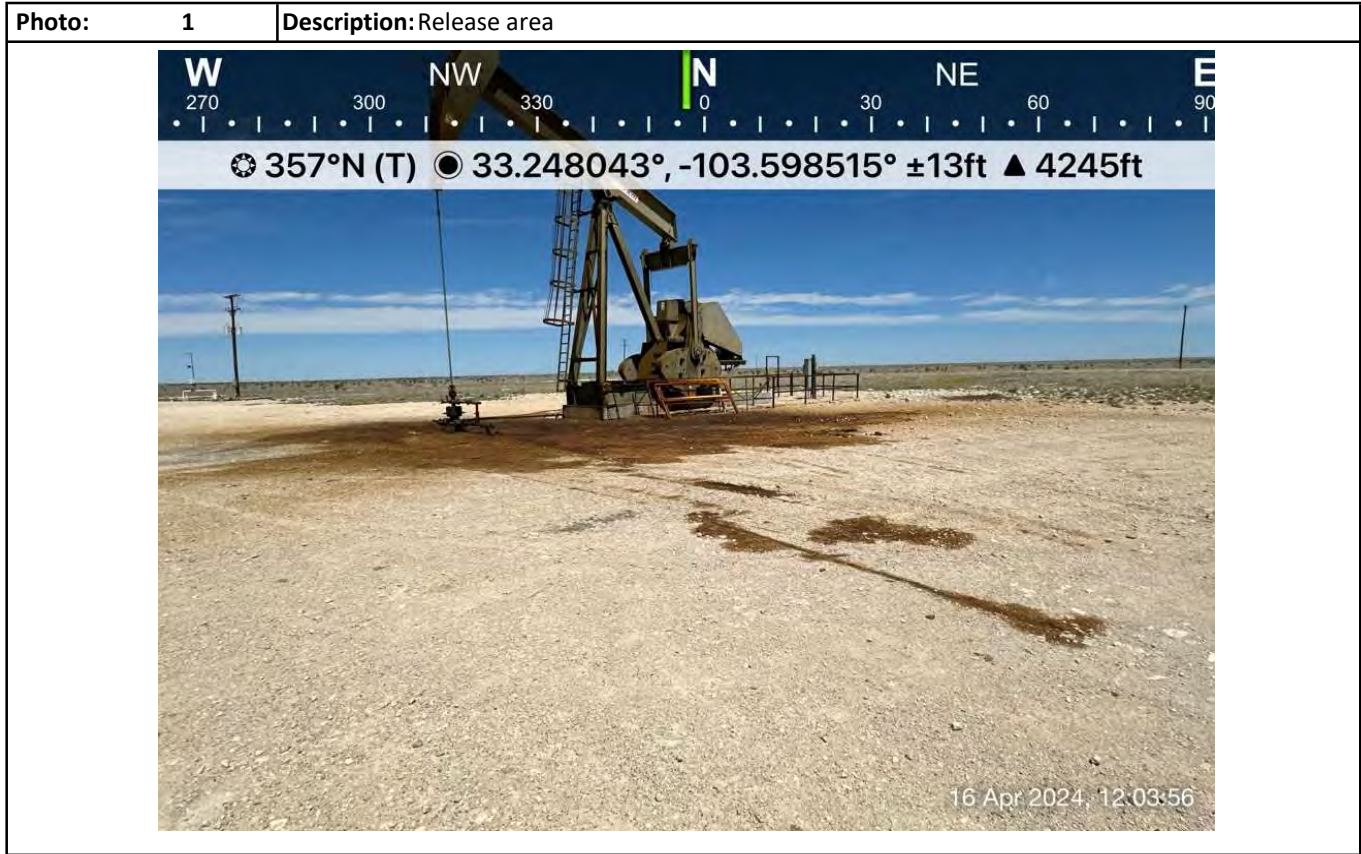
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1220 South St. Francis Drive | Santa Fe, NM 87505 | P: (505) 476-3200 | F: (505) 476-3220



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Attachment III Site Photographs

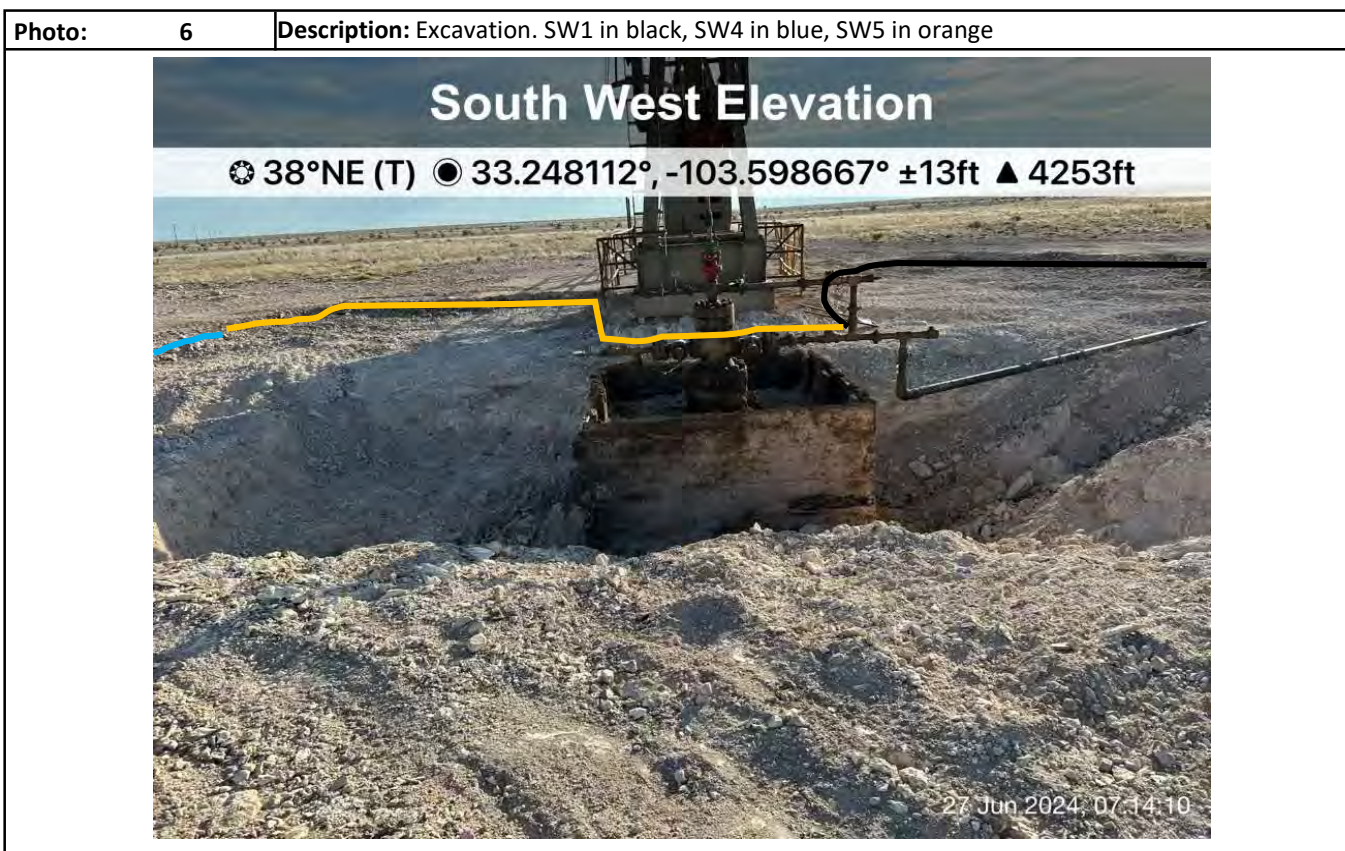
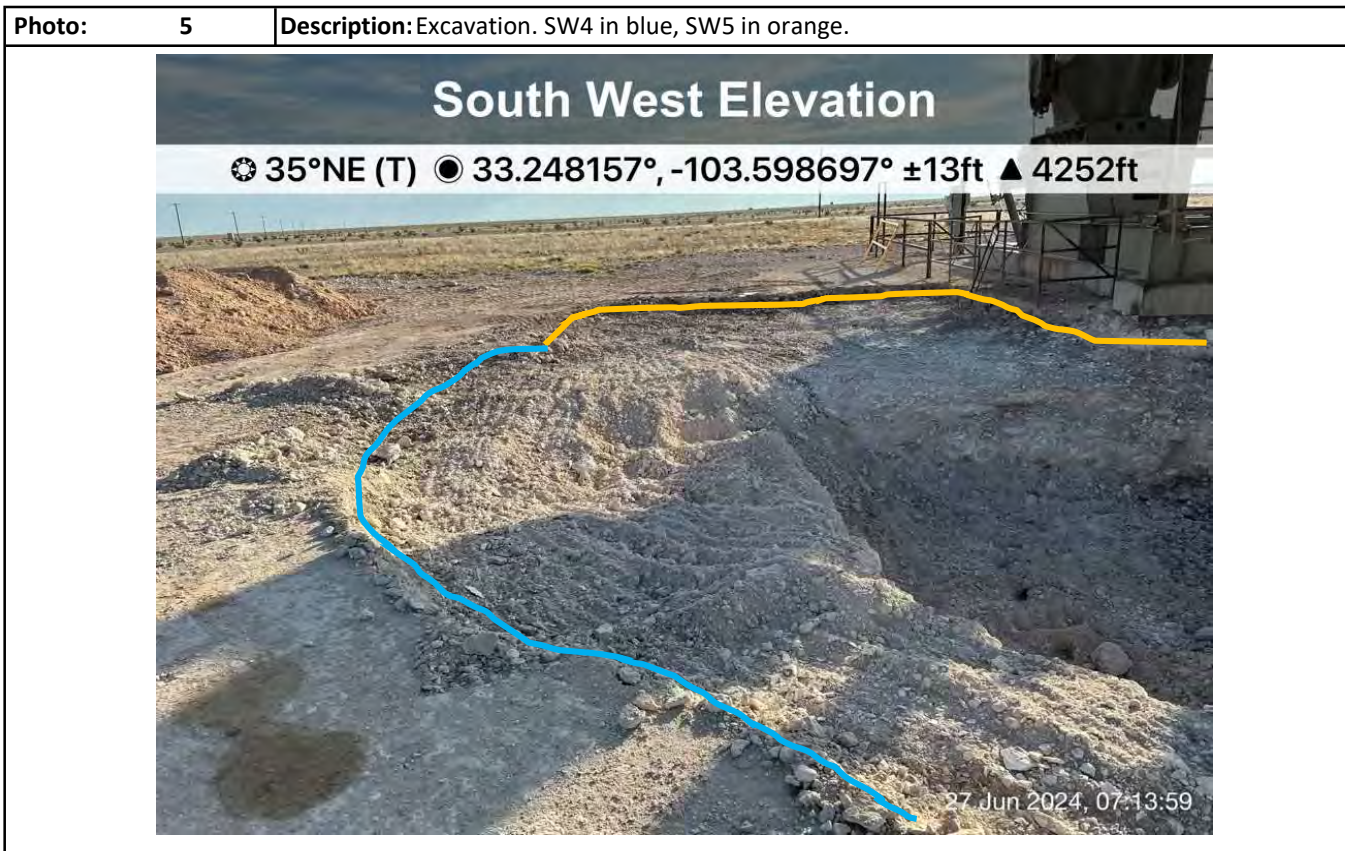
Photographs



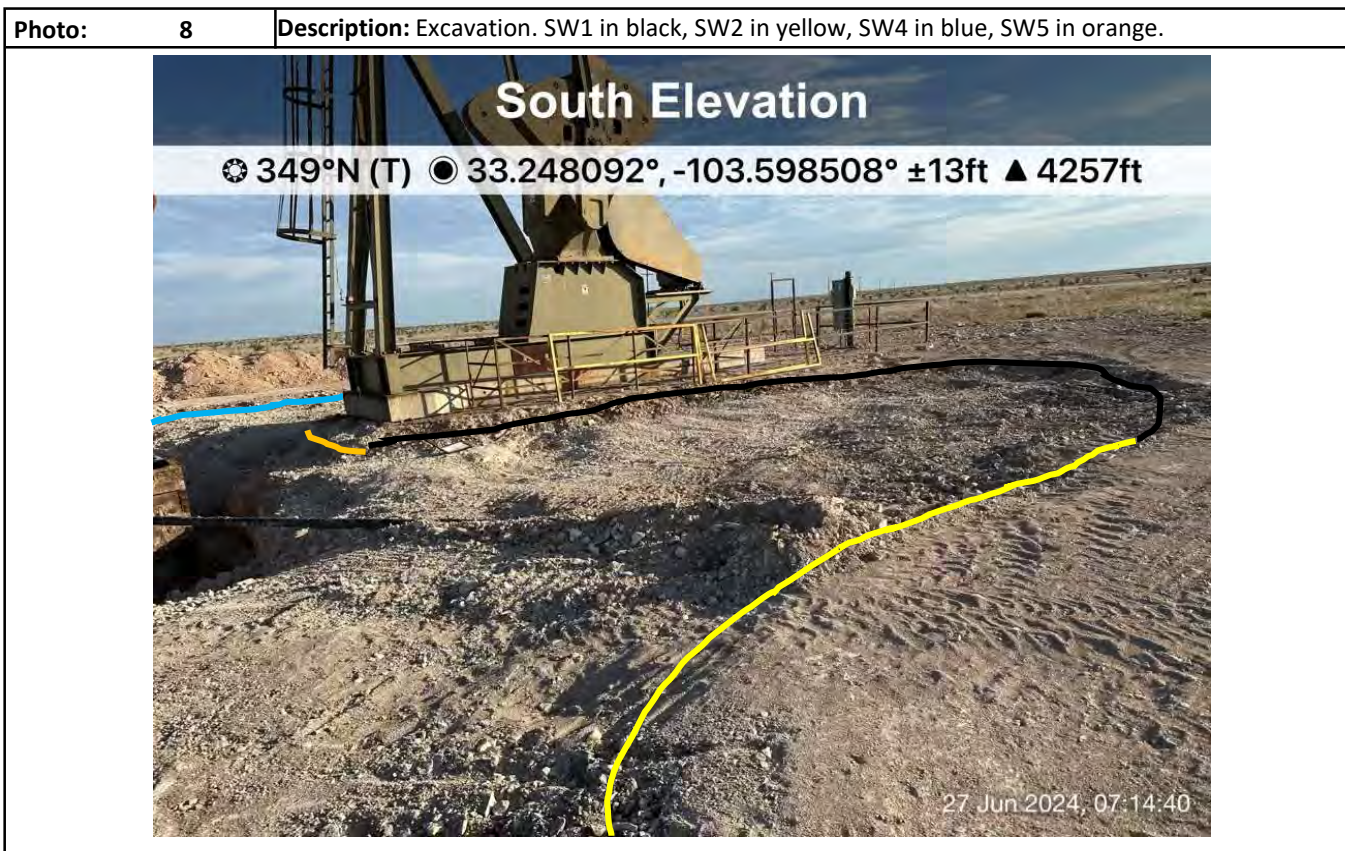
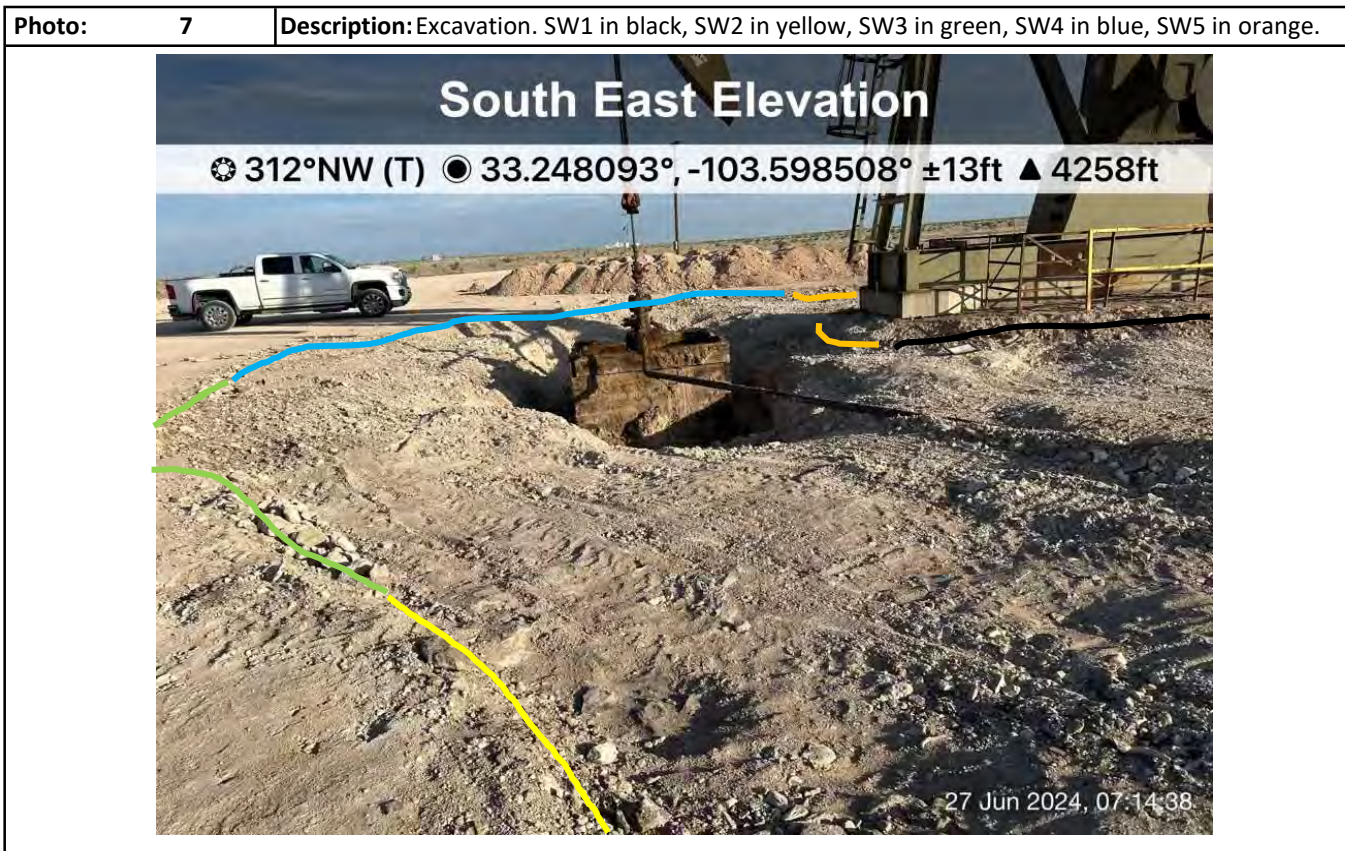
Photographs



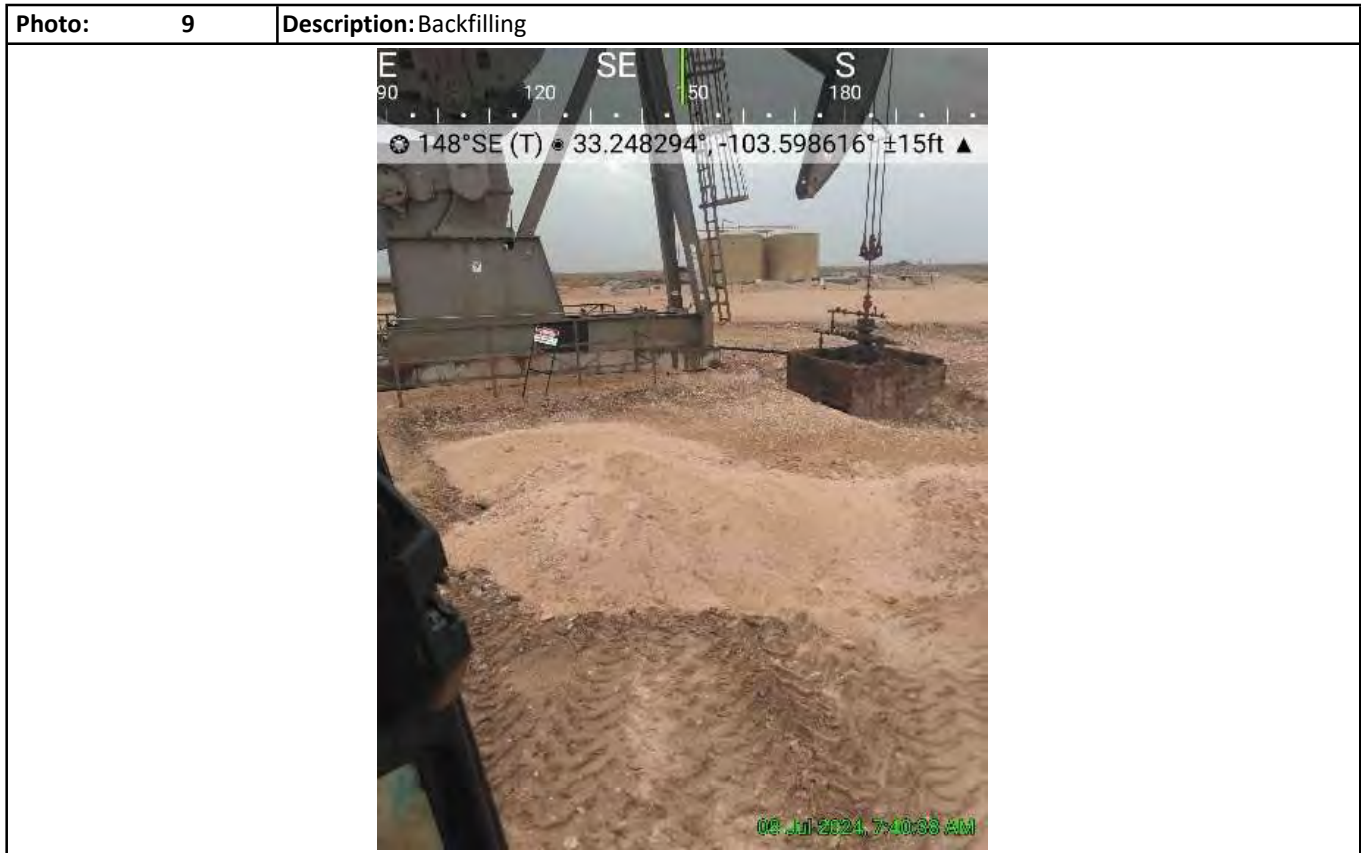
Photographs



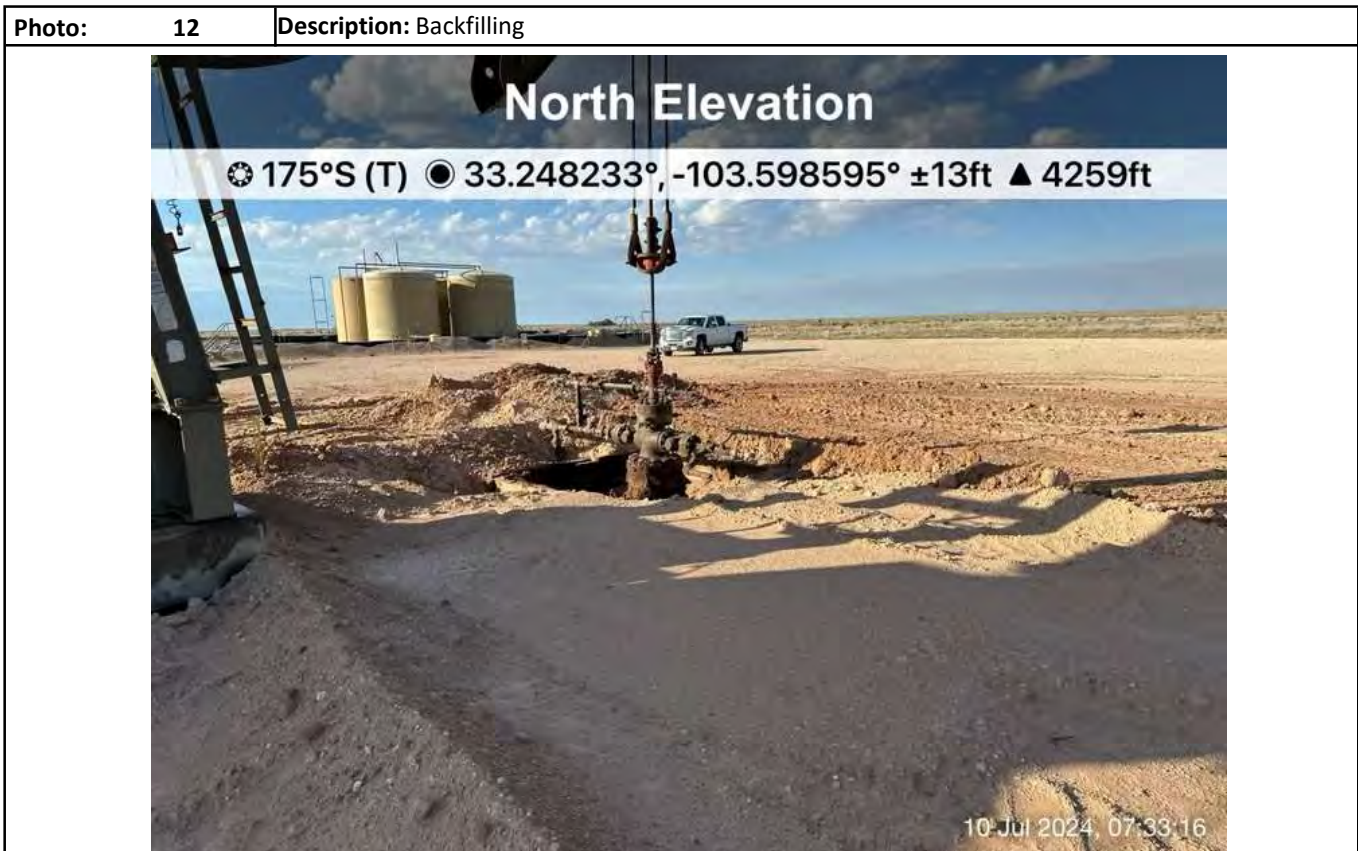
Photographs



Photographs



Photographs



Photographs



Attachment IV

Depth to Groundwater



New Mexico Office of the State Engineer
Wells with Well Log Information

No wells found.

UTMNAD83 Radius Search (in meters):

Easting (X): 630553.47 Northing (Y): 3679673.13 Radius: 805

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for particular purpose of the data.

5/17/24 8:24 AM

WELLS WITH WELL LOG INFORMATION



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 hideNews Bulletins

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

Groundwater levels for the Nation

 Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

Agency code = usgs
site_no list =

- 331450103353401

Minimum number of levels = 1
[Save file of selected sites](#) to local disk for future upload

USGS 331450103353401 12S.33E.27.24444

Lea County, New Mexico
Latitude 33°14'59", Longitude 103°35'35" NAD27
Land-surface elevation 4,243.70 feet above NGVD29
The depth of the well is 92 feet below land surface.
This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.
This well is completed in the Ogallala Formation (121OGLL) local aquifer.

Output formats

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

Date	Time	? Water-level date- time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Water- level approval status
1961-02-16			D62610		4161.67	NGVD29	P		Z		A
1961-02-16			D62611		4163.30	NAVD88	P		Z		A
1961-02-16			D72019	82.03			P		Z		A
1966-02-09			D62610		4163.82	NGVD29	P		Z		A
1966-02-09			D62611		4165.45	NAVD88	P		Z		A
1966-02-09			D72019	79.88			P		Z		A
1971-03-25			D62610		4164.14	NGVD29	P		Z		A
1971-03-25			D62611		4165.77	NAVD88	P		Z		A
1971-03-25			D72019	79.56			P		Z		A
1976-05-05			D62610		4164.56	NGVD29	1		Z		A
1976-05-05			D62611		4166.19	NAVD88	1		Z		A
1976-05-05			D72019	79.14			1		Z		A
1981-03-10			D62610		4164.23	NGVD29	1		Z		A
1981-03-10			D62611		4165.86	NAVD88	1		Z		A
1981-03-10			D72019	79.47			1		Z		A

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Status	P	Pumping
Method of measurement	Z	Other.
Measuring agency		Not determined
Source of measurement		Not determined

Section	Code	Description
Water-level approval status	A	Approved for publication -- Processing and review completed.

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Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>

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

Page Last Modified: 2024-05-17 12:25:59 EDT

0.29 0.25 nadww02



Attachment V

Field Data

Sample Log

Hungry Horse, LLC

Project: Hightower State Unit #2

Karst Yes Water 50'-100'

Standard TPH 100mg/kg, Chloride 600mg/kg

Date: 4-29-24GPS: 33.248184, -103.59864Sampler: Jerry Heidelberg

Sample ID	Depth	PID/Odor	Chloride	GPS
HZ 1	Surf	No	2.8 @ 49X4 = 196	
	1'	No	2.4 @ 65X4 = 260	
HZ 2	Surf	No	2.4 @ 65X4 = 260	
	1'	No	1.8 @ 43X4 = 172	
HZ 3	Surf	No	2.4 @ 65X4 = 260	
	1'	No	1.8 @ 43X4 = 172	
HZ 4	Surf	No	2.8 @ 83X4 = 332	
	1'	No	2.0 @ 49X4 = 196	
SP1	Surf	Yes	2.0 H @ 279X4 = 1,116	
5-30-24	1'	Yes	3.6 @ 125X4 = 500	You can smell the Oil Nit
	2'	Little	3.8 @ 138X4 = 552	
	3'	No	3.4 @ 114X4 = 456	3' No odor will jar send to Lab
	4'			
	6'			
	8'			
	10'			
	12'			
SP2	Surf	Yes	2.4 H @ 279X4 = 1,116	
	1'	Yes	1.4 @ 30X4 = 125	
	2'	Little	2.4 @ 65X4 = 260	
	3'	No	1.4 @ 30X4 = 125	No odor will jar send to Lab
	4'			
	6'			
	8'			
	10'			
	12'			
SP3	Surf	Yes	2.2 H @ 279X4 = 1,116	
	1'	Yes	2.8 @ 83X4 = 332	
5-30-24	2'	No	1.8 @ 43X4 = 172	Will jar and send to Lab
	3'			
	4'			
	6'			
	8'			
	10'			
	12'			

Sample Point = SP1 @ ## etc

Floor = FL1 etc

Sidewall = SW1 etc

Horizontal = HZ1 etc

Refusal = SP1 @ 4'-R

GPS Sample Points, Center of Comp Areas

Test Trench = TT1 @ ##

Resamples = SP1b @ 5' or SW #1b

Stockpile = Stockpile #1

Attachment VI

Laboratory Analytical Reports



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

May 07, 2024

DANIEL DOMINGUEZ

Hungry Horse Environmental

P.O. Box 1058

Hobbs, NM 88240

RE: HIGHTOWER STATE UNIT #2

Enclosed are the results of analyses for samples received by the laboratory on 05/01/24 16:06.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received:	05/01/2024	Sampling Date:	04/29/2024
Reported:	05/07/2024	Sampling Type:	Soil
Project Name:	HIGHTOWER STATE UNIT #2	Sampling Condition:	Cool & Intact
Project Number:	MURCHISON	Sample Received By:	Tamara Oldaker
Project Location:	UL/ O SEC 2 T25S - R26E		

Sample ID: HZ1 - SURF (H242350-01)

BTX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTX	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 119 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 99.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 75.7 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ1 - 1' (H242350-02)

BTEx 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83	
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92	
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63	
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29	
Total BTEx	<0.300	0.300	05/04/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 136 % 71.5-134

Chloride, SM4500CI-B			mg/kg					Analyzed By: HM	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	05/07/2024	ND	416	104	400	0.00	

TPH 8015M			mg/kg					Analyzed By: MS	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 94.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 73.0 % 49.1-148

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ2 - SURF (H242350-03)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTEx	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 119 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 97.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 75.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ2 - 1' (H242350-04)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTEX	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 128 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 94.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 74.2 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ3 - SURF (H242350-05)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTEx	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 124 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 75.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 61.4 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ3 - 1' (H242350-06)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTEX	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 123 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 87.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 69.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ4 - SURF (H242350-07)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTEx	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 126 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 88.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 68.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/01/2024
 Reported: 05/07/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 04/29/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: HZ4 - 1' (H242350-08)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/04/2024	ND	1.91	95.5	2.00	3.83		
Toluene*	<0.050	0.050	05/04/2024	ND	1.97	98.7	2.00	4.92		
Ethylbenzene*	<0.050	0.050	05/04/2024	ND	2.16	108	2.00	4.63		
Total Xylenes*	<0.150	0.150	05/04/2024	ND	6.62	110	6.00	3.29		
Total BTEX	<0.300	0.300	05/04/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 121 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	05/07/2024	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/03/2024	ND	211	105	200	3.52	
DRO >C10-C28*	<10.0	10.0	05/03/2024	ND	198	98.9	200	5.97	
EXT DRO >C28-C36	<10.0	10.0	05/03/2024	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 82.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received:	05/01/2024	Sampling Date:	04/29/2024
Reported:	05/07/2024	Sampling Type:	Soil
Project Name:	HIGHTOWER STATE UNIT #2	Sampling Condition:	Cool & Intact
Project Number:	MURCHISON	Sample Received By:	Tamara Oldaker
Project Location:	UL/ O SEC 2 T25S - R26E		

Sample ID: SP1 - SURF (H242350-09)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.712	0.500	05/04/2024	ND	1.91	95.5	2.00	3.83	
Toluene*	10.9	0.500	05/04/2024	ND	1.97	98.7	2.00	4.92	
Ethylbenzene*	8.69	0.500	05/04/2024	ND	2.16	108	2.00	4.63	
Total Xylenes*	35.6	1.50	05/04/2024	ND	6.62	110	6.00	3.29	
Total BTEX	55.9	3.00	05/04/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 129 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	832	16.0	05/07/2024	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	1140	50.0	05/04/2024	ND	198	98.9	200	1.40	QR-03	
DRO >C10-C28*	13500	50.0	05/04/2024	ND	207	104	200	1.54	QM-07	
EXT DRO >C28-C36	2820	50.0	05/04/2024	ND						

Surrogate: 1-Chlorooctane 195 % 48.2-134

Surrogate: 1-Chlorooctadecane 271 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received:	05/01/2024	Sampling Date:	04/29/2024
Reported:	05/07/2024	Sampling Type:	Soil
Project Name:	HIGHTOWER STATE UNIT #2	Sampling Condition:	Cool & Intact
Project Number:	MURCHISON	Sample Received By:	Tamara Oldaker
Project Location:	UL/ O SEC 2 T25S - R26E		

Sample ID: SP2 - SURF (H242350-10)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	1.81	0.500	05/04/2024	ND	1.91	95.5	2.00	3.83	
Toluene*	32.0	0.500	05/04/2024	ND	1.97	98.7	2.00	4.92	
Ethylbenzene*	23.9	0.500	05/04/2024	ND	2.16	108	2.00	4.63	
Total Xylenes*	86.3	1.50	05/04/2024	ND	6.62	110	6.00	3.29	
Total BTEX	144	3.00	05/04/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 132 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	05/07/2024	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	2440	50.0	05/04/2024	ND	198	98.9	200	1.40		
DRO >C10-C28*	10300	50.0	05/04/2024	ND	207	104	200	1.54		
EXT DRO >C28-C36	1730	50.0	05/04/2024	ND						

Surrogate: 1-Chlorooctane 167 % 48.2-134

Surrogate: 1-Chlorooctadecane 213 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received:	05/01/2024	Sampling Date:	04/29/2024
Reported:	05/07/2024	Sampling Type:	Soil
Project Name:	HIGHTOWER STATE UNIT #2	Sampling Condition:	Cool & Intact
Project Number:	MURCHISON	Sample Received By:	Tamara Oldaker
Project Location:	UL/ O SEC 2 T25S - R26E		

Sample ID: SP3 - SURF (H242350-11)

BTEx 8021B		mg/kg		Analyzed By: JH				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.571	0.500	05/04/2024	ND	1.91	95.5	2.00	3.83	
Toluene*	16.4	0.500	05/04/2024	ND	1.97	98.7	2.00	4.92	
Ethylbenzene*	18.6	0.500	05/04/2024	ND	2.16	108	2.00	4.63	
Total Xylenes*	72.5	1.50	05/04/2024	ND	6.62	110	6.00	3.29	
Total BTEX	108	3.00	05/04/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 145 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	05/07/2024	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	1720	50.0	05/04/2024	ND	198	98.9	200	1.40	
DRO >C10-C28*	6850	50.0	05/04/2024	ND	207	104	200	1.54	
EXT DRO >C28-C36	918	50.0	05/04/2024	ND					

Surrogate: 1-Chlorooctane 147 % 48.2-134

Surrogate: 1-Chlorooctadecane 143 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Hungry Horse LLC		P.O. #:		BILL TO		ANALYSIS REQUEST									
Project Manager: Daniel Dominguez		Company: Murchison Oil & Gas													
Address: 4024 Plains Hwy		Attn: Greg Boans													
City: Lovington	State: NM	Zip: 88260	Address: 5325 Sierra Vista												
Phone #: 575 393-3386	Fax #:	City: Carlsbad													
Project #:	Project Owner: Murchison Oil & Gas	State: NM		Zip: 88230											
Project Name: Hightower State Unit #2		Phone #: 575 706-0667													
Project Location: UL/O Sec 2 T2S - R26E		Fax #:													
Sampler Name: Jerry Heidelberg															
FOR LAB USE ONLY															
Lab I.D. Sample I.D.		(G)RAB OR (C)OMP		# CONTAINERS		GROUNDWATER		WASTEWATER		MATRIX		PRESERV.		SAMPLING	
HZ4-130		G 1		1		X		X		X		X		X	
HZ1-Surf		G 1		4/29/24		X		X		X		X		X	
HZ1-1'		G 1		4/29/24		X		X		X		X		X	
HZ2-Surf		G 1		4/29/24		X		X		X		X		X	
HZ2-1'		G 1		4/29/24		X		X		X		X		X	
HZ3-Surf		G 1		4/29/24		X		X		X		X		X	
HZ3-1'		G 1		4/29/24		X		X		X		X		X	
HZ4-Surf		G 1		4/29/24		X		X		X		X		X	
HZ4-1'		G 1		4/29/24		X		X		X		X		X	
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising from this contract or not, shall be limited to the amount paid by the client for the analysis. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.															
Reinquisitioned By: [Signature]		Date: 5/1/2025		Received By: [Signature]											
Relinquished By: [Signature]		Time: 10:00		Date: 4/29/24											
Delivered By: (Circle One) 1. SC		Sample Condition		CHECKED BY: (Initials)											
Sampler - UPS - Bus - Other: 4/40		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>											
REMARKS:															
Email results to: pm@hungry-horse.com															
gboans@jdmil.com															
Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #:															
Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #:															



101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 04, 2024

DANIEL DOMINGUEZ

Hungry Horse Environmental

P.O. Box 1058

Hobbs, NM 88240

RE: HIGHTOWER STATE UNIT #2

Enclosed are the results of analyses for samples received by the laboratory on 05/30/24 15:27.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Mike Snyder".

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received:	05/30/2024	Sampling Date:	05/30/2024
Reported:	06/04/2024	Sampling Type:	Soil
Project Name:	HIGHTOWER STATE UNIT #2	Sampling Condition:	Cool & Intact
Project Number:	MURCHISON	Sample Received By:	Alyssa Parras
Project Location:	UL/ O SEC 2 T25S - R26E		

Sample ID: SP 1 - 3' (H243037-01)

BTX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/31/2024	ND	1.80	90.0	2.00	5.41		
Toluene*	<0.050	0.050	05/31/2024	ND	1.83	91.5	2.00	4.94		
Ethylbenzene*	<0.050	0.050	05/31/2024	ND	1.77	88.6	2.00	4.45		
Total Xylenes*	<0.150	0.150	05/31/2024	ND	5.55	92.5	6.00	4.48		
Total BTX	<0.300	0.300	05/31/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	06/03/2024	ND	464	116	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/31/2024	ND	217	109	200	1.40	
DRO >C10-C28*	165	10.0	05/31/2024	ND	224	112	200	3.36	
EXT DRO >C28-C36	23.2	10.0	05/31/2024	ND					

Surrogate: 1-Chlorooctane 106 % 48.2-134

Surrogate: 1-Chlorooctadecane 119 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/30/2024
 Reported: 06/04/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 05/30/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Alyssa Parras

Sample ID: SP 2 - 3' (H243037-02)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/31/2024	ND	1.80	90.0	2.00	5.41		
Toluene*	<0.050	0.050	05/31/2024	ND	1.83	91.5	2.00	4.94		
Ethylbenzene*	<0.050	0.050	05/31/2024	ND	1.77	88.6	2.00	4.45		
Total Xylenes*	<0.150	0.150	05/31/2024	ND	5.55	92.5	6.00	4.48		
Total BTEX	<0.300	0.300	05/31/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/03/2024	ND	464	116	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/31/2024	ND	217	109	200	1.40	
DRO >C10-C28*	16.5	10.0	05/31/2024	ND	224	112	200	3.36	
EXT DRO >C28-C36	<10.0	10.0	05/31/2024	ND					

Surrogate: 1-Chlorooctane 104 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 05/30/2024
 Reported: 06/04/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 05/30/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Alyssa Parras

Sample ID: SP 3 - 2' (H243037-03)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	05/31/2024	ND	1.80	90.0	2.00	5.41		
Toluene*	<0.050	0.050	05/31/2024	ND	1.83	91.5	2.00	4.94		
Ethylbenzene*	<0.050	0.050	05/31/2024	ND	1.77	88.6	2.00	4.45		
Total Xylenes*	<0.150	0.150	05/31/2024	ND	5.55	92.5	6.00	4.48		
Total BTEX	<0.300	0.300	05/31/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	160	16.0	06/03/2024	ND	464	116	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/31/2024	ND	217	109	200	1.40	
DRO >C10-C28*	117	10.0	05/31/2024	ND	224	112	200	3.36	
EXT DRO >C28-C36	15.6	10.0	05/31/2024	ND					

Surrogate: 1-Chlorooctane 111 % 48.2-134

Surrogate: 1-Chlorooctadecane 123 % 49.1-148

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*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- BS-3 Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Mike Snyder".

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240
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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 01, 2024

DANIEL DOMINGUEZ

Hungry Horse Environmental

P.O. Box 1058

Hobbs, NM 88240

RE: HIGHTOWER STATE UNIT #2

Enclosed are the results of analyses for samples received by the laboratory on 06/27/24 14:36.

Cardinal Laboratories is accredited through Texas NELAP under certificate number TX-C24-00112. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received:	06/27/2024	Sampling Date:	06/27/2024
Reported:	07/01/2024	Sampling Type:	Soil
Project Name:	HIGHTOWER STATE UNIT #2	Sampling Condition:	Cool & Intact
Project Number:	MURCHISON	Sample Received By:	Shalyn Rodriguez
Project Location:	UL/ O SEC 2 T25S - R26E		

Sample ID: FL 1 - 1' (H243866-01)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0	
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4	
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6	
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07	
Total BTEX	<0.300	0.300	06/28/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	06/28/2024	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 83.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 81.5 % 49.1-148

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 2 - 1' (H243866-02)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 67.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 68.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 3 - 1' (H243866-03)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 77.2 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.6 % 49.1-148

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 4 - 1' (H243866-04)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 74.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 73.7 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 5 - 1' (H243866-05)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 80.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 80.7 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 6 - 1' (H243866-06)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 70.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 71.1 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 7 - 5' (H243866-07)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 85.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 84.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
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 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 8 - 1' (H243866-08)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/28/2024	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 84.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 82.0 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
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Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 9 - 1' (H243866-09)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 61.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 66.3 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 10 - 1' (H243866-10)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 80.6 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.4 % 49.1-148

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Analytical Results For:

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 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 11 - 1' (H243866-11)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0		
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 86.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 82.6 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
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 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 12 - 5' (H243866-12)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/28/2024	ND	1.99	99.4	2.00	15.0	
Toluene*	<0.050	0.050	06/28/2024	ND	2.11	106	2.00	12.4	
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.09	104	2.00	10.6	
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.48	108	6.00	9.07	
Total BTEX	<0.300	0.300	06/28/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	211	106	200	1.14	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	208	104	200	0.114	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 80.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.7 % 49.1-148

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 13 - 5' (H243866-13)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 74.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 74.4 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 14 - 5' (H243866-14)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 55.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 55.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 15 - 3' (H243866-15)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: CT						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 65.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 65.6 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 16 - 1' (H243866-16)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 72.1 % 48.2-134

Surrogate: 1-Chlorooctadecane 74.1 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 17 - 1' (H243866-17)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3	
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0	
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2	
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6	
Total BTEx	<0.300	0.300	06/28/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 78.0 % 48.2-134

Surrogate: 1-Chlorooctadecane 78.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 18 - 5' (H243866-18)

BTEx 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3	
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0	
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2	
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6	
Total BTEX	<0.300	0.300	06/28/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 71.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 72.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 19 - 5' (H243866-19)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 71.7 % 48.2-134

Surrogate: 1-Chlorooctadecane 71.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 20 - 1' (H243866-20)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 67.5 % 48.2-134

Surrogate: 1-Chlorooctadecane 67.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 21 - 1' (H243866-21)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 74.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 75.1 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 22 - 5' (H243866-22)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3	
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0	
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2	
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6	
Total BTEX	<0.300	0.300	06/28/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 87.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 89.3 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 23 - 5' (H243866-23)

BTEX 8021B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3	
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0	
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2	
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6	
Total BTEX	<0.300	0.300	06/28/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 94.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 97.5 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: FL 24 - 5' (H243866-24)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEx	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 89.9 % 48.2-134

Surrogate: 1-Chlorooctadecane 92.3 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SW 1 (H243866-25)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	432	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	13.5	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 93.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 96.7 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SW 2 (H243866-26)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 114 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 89.8 % 48.2-134

Surrogate: 1-Chlorooctadecane 91.8 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
 P.O. Box 1058
 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SW 3 (H243866-27)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 112 % 48.2-134

Surrogate: 1-Chlorooctadecane 116 % 49.1-148

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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SW 4 (H243866-28)

BTEx 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/28/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/28/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/28/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/28/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/28/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	06/28/2024	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/28/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/28/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/28/2024	ND					

Surrogate: 1-Chlorooctane 98.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 103 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Hungry Horse Environmental
 DANIEL DOMINGUEZ
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 Hobbs NM, 88240
 Fax To: (505) 391-4585

Received: 06/27/2024
 Reported: 07/01/2024
 Project Name: HIGHTOWER STATE UNIT #2
 Project Number: MURCHISON
 Project Location: UL/ O SEC 2 T25S - R26E

Sampling Date: 06/27/2024
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Shalyn Rodriguez

Sample ID: SW 5 (H243866-29)

BTEX 8021B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/29/2024	ND	2.24	112	2.00	12.3		
Toluene*	<0.050	0.050	06/29/2024	ND	2.34	117	2.00	11.0		
Ethylbenzene*	<0.050	0.050	06/29/2024	ND	2.30	115	2.00	10.2		
Total Xylenes*	<0.150	0.150	06/29/2024	ND	6.80	113	6.00	10.6		
Total BTEX	<0.300	0.300	06/29/2024	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 71.5-134

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	06/28/2024	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/29/2024	ND	193	96.5	200	4.63	
DRO >C10-C28*	<10.0	10.0	06/29/2024	ND	192	95.9	200	3.45	
EXT DRO >C28-C36	<10.0	10.0	06/29/2024	ND					

Surrogate: 1-Chlorooctane 96.4 % 48.2-134

Surrogate: 1-Chlorooctadecane 98.4 % 49.1-148

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

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[illegible]



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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Hungry Horse LLC		P.O. #:		BILL TO		ANALYSIS REQUEST															
Project Manager: Daniel Dominguez		Company: Murchison Oil & Gas																			
Address: 4024 Plains Hwy		Attn: Greg Boans																			
City: Lovington	State: NM	Zip: 88260	Address: 5325 Sierra Vista																		
Phone #: 575 393-3386	Fax #:	City: Carlsbad																			
Project #:	Project Owner: Murchison Oil & Gas	State: NM		Zip: 88230																	
Project Name: Hightower State Unit #2	Phone #: 575 706-0667		Fax #:																		
Project Location: U/L O Sec 2 T25S - R26E																					
Sampler Name: Jerry Heidelberg																					
FOR LAB USE ONLY																					
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX			PRESERV.	SAMPLING													
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	Chloride	TPH	BTEX 8021				
11	FL11-1'	C	1	X									6/27/24		X	X	X				
12	FL12-5'	C	1	X									6/27/24		X	X	X				
13	FL13-5'	C	1	X									6/27/24		X	X	X				
14	FL14-5'	C	1	X									6/27/24		X	X	X				
15	FL15-3'	C	1	X									6/27/24		X	X	X				
16	FL16-1'	C	1	X									6/27/24		X	X	X				
17	FL17-1'	C	1	X									6/27/24		X	X	X				
18	FL18-5'	C	1	X									6/27/24		X	X	X				
19	FL19-5'	C	1	X									6/27/24		X	X	X				
20	FL20-1'	C	1	X									6/27/24		X	X	X				
PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever, shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.																					
Relinquished By: <i>[Signature]</i>		Date: 8-27-24	Time: 1:30	Received By: <i>[Signature]</i>																	
Delivered By: (Circle One) <i>4-lc #140</i>		Sample Condition: Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		CHECKED BY: <i>[Signature]</i>																	
Sampler - UPS - Bus - Other: <i>4-lc #140</i>		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>																			
Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476		No <input type="checkbox"/> Yes <input checked="" type="checkbox"/>																			
REMARKS: 48 hr RUSH		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																	
Email results to: pm@hungry-horse.com		Add'l Phone #:		Add'l Fax#:																	
gboans@jdmil.com																					

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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QUESTIONS

Action 368962

QUESTIONS

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	368962
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2410253099
Incident Name	NAPP2410253099 HIGHTOWER STATE UNIT 2 @ 30-025-38605
Incident Type	Oil Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-025-38605] HIGHTOWER STATE UNIT #002

Location of Release Source	
Please answer all the questions in this group.	
Site Name	Hightower State Unit 2
Date Release Discovered	04/11/2024
Surface Owner	State

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Equipment Failure Other (Specify) Crude Oil Released: 15 BBL Recovered: 10 BBL Lost: 5 BBL.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Not answered.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Polish rod packing failure

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QUESTIONS, Page 2

Action 368962

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	368962
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response

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

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

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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

I hereby agree and sign off to the above statement	Name: Cindy Cottrell Title: Regulatory Coordinator Email: ccottrell@jdmii.com Date: 08/08/2024
--	---

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QUESTIONS, Page 3

Action 368962

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	368962
Action Type:	
[C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

QUESTIONS

Site Characterization	
<i>Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 75 and 100 (ft.)
What method was used to determine the depth to ground water	U.S. Geological Survey
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1000 (ft.) and ½ (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Greater than 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 1000 (ft.) and ½ (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
Requesting a remediation plan approval with this submission	Yes
<i>Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.</i>	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	832
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	17460
GRO+DRO (EPA SW-846 Method 8015M)	14640
BTEX (EPA SW-846 Method 8021B or 8260B)	144
Benzene (EPA SW-846 Method 8021B or 8260B)	1.8
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
On what estimated date will the remediation commence	06/10/2024
On what date will (or did) the final sampling or liner inspection occur	06/27/2024
On what date will (or was) the remediation complete(d)	07/08/2024
What is the estimated surface area (in square feet) that will be reclaimed	4800
What is the estimated volume (in cubic yards) that will be reclaimed	240
What is the estimated surface area (in square feet) that will be remediated	4800
What is the estimated volume (in cubic yards) that will be remediated	240
<i>These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.</i>	
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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QUESTIONS, Page 4

Action 368962

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	368962
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	GANDY MARLEY LANDFARM/LANDFILL [FEEM0112338393]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Cindy Cottrell Title: Regulatory Coordinator Email: ccottrell@jdmii.com Date: 08/08/2024
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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QUESTIONS, Page 5

Action 368962

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID: 15363
	Action Number: 368962
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS, Page 6

Action 368962

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:	15363
	Action Number:	368962
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	356846
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	06/27/2024
What was the (estimated) number of samples that were to be gathered	29
What was the sampling surface area in square feet	4800

Remediation Closure Request

Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.

Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	4800
What was the total volume (cubic yards) remediated	240
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	4800
What was the total volume (in cubic yards) reclaimed	240
Summarize any additional remediation activities not included by answers (above)	none

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

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

I hereby agree and sign off to the above statement	Name: Cindy Cottrell Title: Regulatory Coordinator Email: ccottrell@jdmii.com Date: 08/08/2024
--	---

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QUESTIONS, Page 7

Action 368962

QUESTIONS (continued)

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID: 15363
	Action Number: 368962
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 368962

CONDITIONS

Operator: Murchison Oil and Gas, LLC 7250 Dallas Parkway Plano, TX 75024	OGRID:
	15363
	Action Number:
	368962
Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

CONDITIONS

Created By	Condition	Condition Date
bhall	Remediation closure approved.	8/9/2024
bhall	A reclamation report will not be accepted until reclamation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	8/9/2024
bhall	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	8/9/2024