Incident Number: nAPP2300955113

Release Assessment and Closure

Rodney Robinson 023H Pad

Section 07, Township 23 South, Range 33 East

API: 30-025-49403

County: Lea

Vertex File Number: 23E-00084

Prepared for:
Matador Production Company

Prepared by:
Vertex Resource Services Inc.

Date:
July 2023

Release Assessment and Closure
Rodney Robinson 023H Pad
Section 07, Township 23 South, Range 33 East
API: 30-025-49403
County: Lea

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

New Mexico Oil Conservation Division – District 1 - Hobbs
1625 North French Drive
Hobbs, New Mexico 88240

Prepared by:
Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, New Mexico 88220

Monica Peppin, A.S.
PROJECT MANAGER, REPORTING

July 17, 2023
Date

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1.0 Introduction

Matador Production Company (Matador) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a treated water release that occurred on January 9, 2023, at Rodney Robinson 023H Pad API 30-025-49403 (hereafter referred to as the "site"). Matador submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 2 and State Land Office on January 19, 2023. Incident ID number nAPP2300955113 was assigned to this incident.

This report provides a description of the release assessment and remediation activities associated with the site. The information presented demonstrates that closure criteria established in Table I of 19.15.29.12 of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD has been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release, with the understanding that restoration of the release site will be completed following remediation activities as per NMAC 19.15.29.13.

2.0 Incident Description

The release occurred on January 9, 2023, due to corrosion on the lay flat line. The incident was reported on January 9, 2023, and involved the release of approximately 80 barrels (bbl.) of treated water around the minion tanks and onto the engineered pad. Approximately 70 bbl. of free fluid was removed during initial clean-up. Additional details relevant to the release are presented in the C-141 Report. Daily Field Report (DFRs) and site photographs are included in Appendix C.

3.0 Site Characteristics

The site is located approximately 23.87 miles southwest of Oil Center, New Mexico (Google Inc., 2023). The legal location for the site is Section 07, Township 23 South and Range 33 East in Lea County, New Mexico. The release area is located on State property. The location is typical of oil and gas exploration and production sites in the Permian Basin, and is currently used for oil and gas production. The following sections specifically describe the release area at the site on the engineered pad where the release occurred. An aerial photograph and site schematic are presented on Figure 1.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2023) indicates the site's surface geology primarily comprises Qep – Eolian and piedmont deposits (Holocene to middle Pleistocene). Predominant soil texture on the site is Kermit-Palomas fine sands and Pyote and Maljamar fine sands (United States Department of Agriculture, Natural Resources Conservation Service, 2023).

The surrounding landscape is associated with dunes and plains with elevations ranging between 3,000 and 4,400 feet. The climate is semiarid with average annual precipitation ranging between 10 and 12 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be black grama, dropseeds, and bluestems. Perennial and annual forb abundance and distribution are dependent on precipitation. The grass/shrub state is composed of grasses/honey mesquite, broom snakeweed, and sand sage (United States Department of Agriculture, Natural Resources Conservation Service, 2023). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

Additional soil characteristics include a drainage class of well to excessively drained with a runoff class of very low to negligible. The karst geology potential for the site is Low (United States Department of the Interior, Bureau of Land Management, 2018).

4.0 Closure Criteria Determination

The nearest active well to the site is a New Mexico Office of the State Engineer (NMOSE) monitoring well located approximately 1.54 miles south of the location (United States Geological Survey, 2023). Data from 2020 show the NMOSE borehole recorded a depth to groundwater of 400 feet below ground surface (bgs). Information pertaining to the depth to ground water determination is included in Appendix B.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Pecos River located approximately 22.9 miles west southwest of the site (United States Fish and Wildlife Service, 2023).

At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Table 1. Closure Criteria Worksheet			
Site Name: Rodney Robinson 023H Pad			
Spill Coordinates:		**X: 32.313373**	**Y: -103.607553**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**400**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	121,239	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	82,605	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	64,327	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	6,876	feet
	ii) Within 1000 feet of any fresh water well or spring	6,876	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	6,912	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	Undetermined	year
11	Soil Type	Kermit-Palomas fine sands and Pyote and Maljamar fine sands	
12	Ecological Classification	Loamy Sand	
13	Geology	Qep	
	NMAC 19.15.29.12 E (Table 2) Closure Criteria	<50'	<50' 51-100' >100'

The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 2.

Table 2. Closure Criteria for Soils Impacted by a Release

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

TDS – total dissolved solids, TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics, BTEX – benzene, toluene, ethylbenzene and xylenes

5.0 Remedial Actions Taken

An initial site inspection of the release area was completed on January 9, 2023, which identified the area of the release specified in the initial C-141 Report, mapping and documenting the release area. No sampling or remediation efforts were commenced due to the amount of equipment on-site from drilling and completions.

Due to the amount of ongoing work still being completed at the site, an extension request for an additional 120 days was submitted for approval to the state on February 8, 2023, to postpone remediation efforts. NMOCD approved the extension request. Documentation is included in Appendix D.

Remediation efforts began on June 9, 2023, and were finalized on June 25, 2023. Vertex personnel supervised the excavation of impacted soils. Field screening was completed on multiple sample points and consisted of analysis using Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and EC meter (chlorides). Field screening results were used to identify areas requiring further remediation. Soils were removed to a depth of 0.5 to 6 feet bgs. Field screening results and DFRs documenting various phases of the remediation are presented in Appendix C.

Notification that confirmatory samples were being collected was provided to the NMOCD on June 8, 2023, and is included in Appendix D. Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments. A total of 21 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Hall Environmental Analysis Laboratory under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are presented in Table 4, and the laboratory data reports are included in Appendix E. All confirmatory samples collected and analyzed were below closure criteria for the site.

6.0 Closure Request

The release area was fully delineated, remediated, and backfilled with local soils. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted

by a Release locations “under 50 feet to groundwater”. Based on these findings, Matador Production Company requests that this release be closed.

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

7.0 References

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New Mexico Bureau of Geology and Mineral Resources. (2023). *Interactive Geologic Map*. Retrieved from https://maps.nmt.edu/

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8.0 Limitations

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

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

FIGURES

Borehole (Prefixed by "BH23-") Pipeline (Underground) Approximate Lease Boundary

VERTEX

0 20 40 Feet

Map Center:
Lat/Long: 32.313503, -103.607230

NAD 1983 UTM Zone 13N

Date: Jun 16/23

N

Characterization Schematic
Rodney Robinson #023H Pad

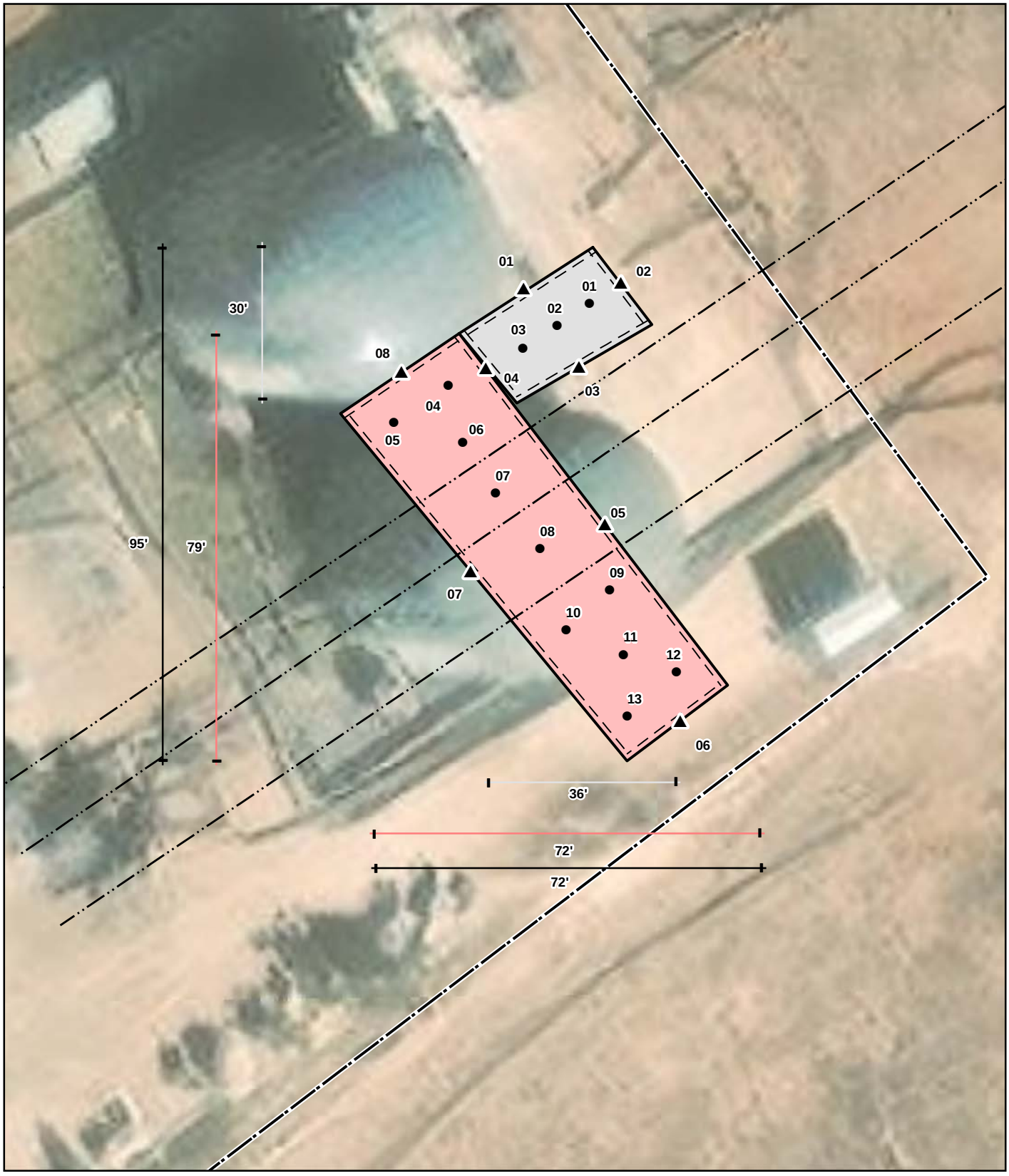
FIGURE:
1

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

Georeferenced image from Esri, 2022. Features from GPS. Approximate lease boundary from imagery. Vertex Professional Services Ltd., 2023.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Matador Resources\23E-00084 - Rodney Robinson #023H Pad\Figure 1 Characterization Schematic_Rodney Robinson #023H Pad (23E-00084).mxd



● Base Sample (Prefixed by "BS23-")
▲ Wall Sample (Prefixed by "WS23-")
Flowline
Approximate Lease Boundary
Excavation to 0.5' (~2,001 sq.ft.)
Excavation to 6' (~490 sq.ft.)

VERTEX

0 5 10 20 ft.
NAD 1983 UTM Zone 13N
Date: Jul 06/23

Map Center:
Lat: 32.313451,
Long:-103.607333

N

Confirmatory Schematic
Rodney Robinson #023H Pad

FIGURE: **2**

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

Note: Georeferenced image from ESRI, 2022. Site features from GPS, Vertex Professional Services Ltd., 2023. Lease boundary approximated by imagery.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Matador Resources\23E-00084 - Rodney Robinson #023H Pad\Figure 2 Confirmatory Schematic (23E-00084)_Request#16220.mxd

TABLES

Table 3. Initial Characterization - Depth to Groundwater <50 feet bgs
Matador Production Company and Operator Group
Rodney Robinson 023 H Pad
NMOCD Tracking #: nAPP2300955113
Project #: 23E-00084
Lab Report: 2305810

Sample Description			Petroleum Hydrocarbons										Inorganic
Sample ID	Depth (ft)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	BTEX (Total) (mg/kg)	Gasoline Range Organics (GRO) (mg/kg)	Diesel Range Organics (DRO) (mg/kg)	Motor Oil Range Organics (MRO) (mg/kg)	(GRO + DRO) (mg/kg)	Total Petroleum Hydrocarbons (TPH) (mg/kg)	Chloride Concentration (mg/kg)
Criteria	NMOCD - NMAC <50 ft 19.15.29 (2018)		10	-	-	-	50	-	-	-	-	100	600
	NMOCD - NMAC 51-100 ft 19.15.29 (2018)		10	-	-	-	50	-	-	-	1000	2500	10000
	NMOCD - NMAC >100 ft 19.15.29 (2018)		10	-	-	-	50	-	-	-	1000	2500	20000
2023 Boreholes													
BH23-01	0	May 10, 2023	ND	ND	ND	ND	ND	ND	290	110	290	**400**	**1600**
	2	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	80
	4	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**760**
BH23-02	0	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**690**
	2	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	81
	4	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-03	0	May 10, 2023	ND	ND	ND	ND	ND	ND	11	ND	11	11	72
	2	May 10, 2023	ND	ND	ND	ND	ND	ND	15	ND	15	15	ND
	4	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-04	0	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2100**
	2	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	230
	4	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	520
BH23-05	0	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
	2	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4	May 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NMAC - New Mexico Administrative Code (Title 19, Chapter 15, Part 29; 2018)
ND - Not Detected at the Reporting Limit
- Denotes no standard/not analyzed
Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)
Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

Table 4. Confirmatory Laboratory Results - Depth to Groundwater <50 feet bgs
Matador Production Company and Operator Group
Rodney Robinson 023 H Pad
NMOCD Tracking #: nAPP2300955113
Project #: 23E-00084
Lab Report: 2306685

Sample Description			Petroleum Hydrocarbons										Inorganic
Sample ID	Depth (ft)	Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Criteria	NMOCD - NMAC <50 ft 19.15.29 (2018)		10	-	-	-	50	-	-	-	-	100	600
	NMOCD - NMAC 51-100 ft 19.15.29 (2018)		10	-	-	-	50	-	-	-	1000	2500	10000
	NMOCD - NMAC >100 ft 19.15.29 (2018)		10	-	-	-	50	-	-	-	1000	2500	20000
Excavation Samples													
WS23-01	0 - 6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200
WS23-02	0 - 6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	290
WS23-03	0 - 6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	160
WS23-04	0.5 - 6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	320
WS23-05	0 - 0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS23-06	0 - 0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	73
WS23-07	0 - 0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	93
WS23-08	0 - 0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	81
BS23-01	6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-02	6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	76
BS23-03	6	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-04	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	310
BS23-05	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	230
BS23-06	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	260
BS23-07	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-08	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	74
BS23-09	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	230
BS23-10	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	290
BS23-11	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	170
BS23-12	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS23-13	0.5	June 12, 2023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NMAC - New Mexico Administrative Code (Title 19, Chapter 15, Part 29; 2018)
ND - Not Detected at the Reporting Limit
- Denotes no standard/not analyzed
Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)
Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

APPENDIX A - NMOCD C-141 Report

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	nAPP2300955113
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Matador Production Company	OGRID 228937
Contact Name Arsenio Jones	Contact Telephone 575-361-4333
Contact email arsenio.jones@matadorresources.com	Incident # *(assigned by OCD)* nAPP2300955113
Contact mailing address 5400 LBJ Freeway, Suite 1500 Dallas, Texas 75240	

Location of Release Source

Latitude 32.313373 Longitude -103.607553
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Rodney Robinson 023H Pad	Site Type
Date Release Discovered 01/09/2023	API# *(if applicable)* 30-025-49403

Unit Letter	Section	Township	Range	County
O	07	23S	33E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 80 bbls	Volume Recovered (bbls) 70 bbls
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Corrosion on connection of lay flat line

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2300955113
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? >25 bbls

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

Arsenio Jones submitted NOR immediately following release occurrence on 1/9/2023 to NMOCD Online Portal

Initial Response

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

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: Arsenio Jones Title: Supervisor - Regulatory

Signature: Clint Talley Date: 7/19/2023

email: arsenio.jones@matadorresources.com Telephone: 575-361-4333

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2300955113
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	400 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	n/aPP2300955113
District RP	
Facility ID	
Application ID	

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

Printed Name: Clinton Talley Title: EHS Supervisor

Signature: Clint Talley Date: 7/19/2023

email: clinton.talley@matadorresources.com Telephone: 337-319-8398

OCD Only

Received by: Shelly Wells Date: 7/20/2023

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2300955113
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Clinton Talley Title: EHS Supervisor

Signature: Clint Talley Date: 7/19/2023

email: clinton.talley@matadorresources.com Telephone: 337-319-8398

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2300955113
District RP	
Facility ID	
Application ID	

Closure

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

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

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

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

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

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

Printed Name: Clinton Talley Title: EHS Supervisor

Signature: Clint Talley Date: 7/19/2023

email: clinton.talley@matadorresources.com Telephone: 337-319-8398

OCD Only

Received by: Shelly Wells Date: 7/20/2023

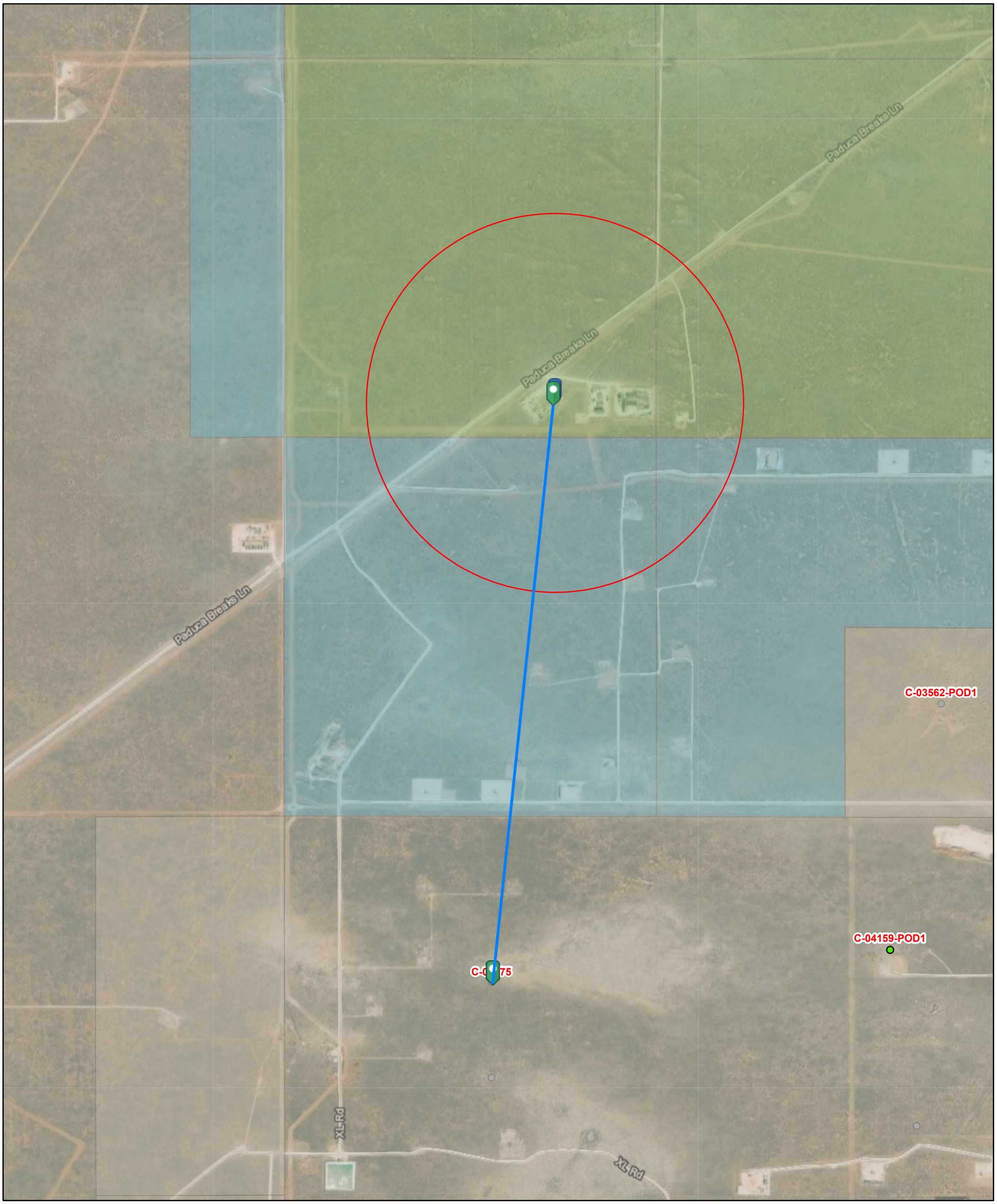
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance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

Closure Approved by: Nelson Velez Date: 10/13/2023

Printed Name: Nelson Velez Title: Environmental Specialist – Adv

APPENDIX B – Closure Criteria Research Documentation

Rodney Robinson 023H Pad



7/7/2023, 1:01:03 PM

Override 1

GIS WATERS PODs

Pending

OSE District Boundary

Water Right Regulations

Closure Area

New Mexico State Trust Lands

Subsurface Estate

Surface Estate

Both Estates

SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

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

Web Generated Map
Map is generated by web users.

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	C 02275	3	3	2	19	23S	33E	630843	3573557*

Driller License: **Driller Company:**

Driller Name: ABBOTT BROTHERS

Drill Start Date:		**Drill Finish Date:**	12/31/1980	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	40 GPM
Casing Size:	8.63	**Depth Well:**	650 feet	**Depth Water:**	400 feet

Meter Number:	514	**Meter Make:**	MASTER METER
Meter Serial Number:	1527874	**Meter Multiplier:**	10.0000
Number of Dials:	6	**Meter Type:**	Diversion
Unit of Measure:	Gallons	**Return Flow Percent:**	
Usage Multiplier:		**Reading Frequency:**	Quarterly

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
02/28/1999	1999	260142	A	ms		0	
04/15/1999	1999	294352	A	ms		1.050	
07/18/1999	1999	320962	A	ms		0.817	
11/28/1999	1999	367317	A	ms		1.423	
04/06/2000	2000	413837	A	mb		1.428	
08/16/2000	2000	474649	A	mb		1.866	
09/15/2000	2000	485983	A	RPT		0.348	
01/19/2001	2000	530107	A	RPT		1.354	
04/27/2001	2001	569967	A	RPT		1.223	
07/16/2001	2001	620178	A	ms		1.541	
01/12/2002	2002	652573	A	tg		0.994	
04/13/2002	2002	662745	A	RPT		0.312	
07/12/2002	2002	674878	A	rm		0.372	
01/01/2003	2002	714899	A	ms		1.228	
07/11/2003	2003	751760	A	ms		1.131	
10/01/2003	2003	778772	A	ab		0.829	
01/08/2004	2003	802123	A	ab		0.717	
04/07/2004	2004	821801	A	RPT		0.604	
07/15/2004	2004	836507	A	RPT		0.451	
10/12/2004	2004	844068	A	RPT		0.232	
01/26/2005	2004	877058	A	RPT		1.012	
04/15/2005	2005	889933	A	RPT		0.395	
08/03/2005	2005	891339	A	RPT		0.043	
10/31/2005	2005	927761	A	RPT		1.118	
01/31/2006	2005	941723	A	RPT		0.428	

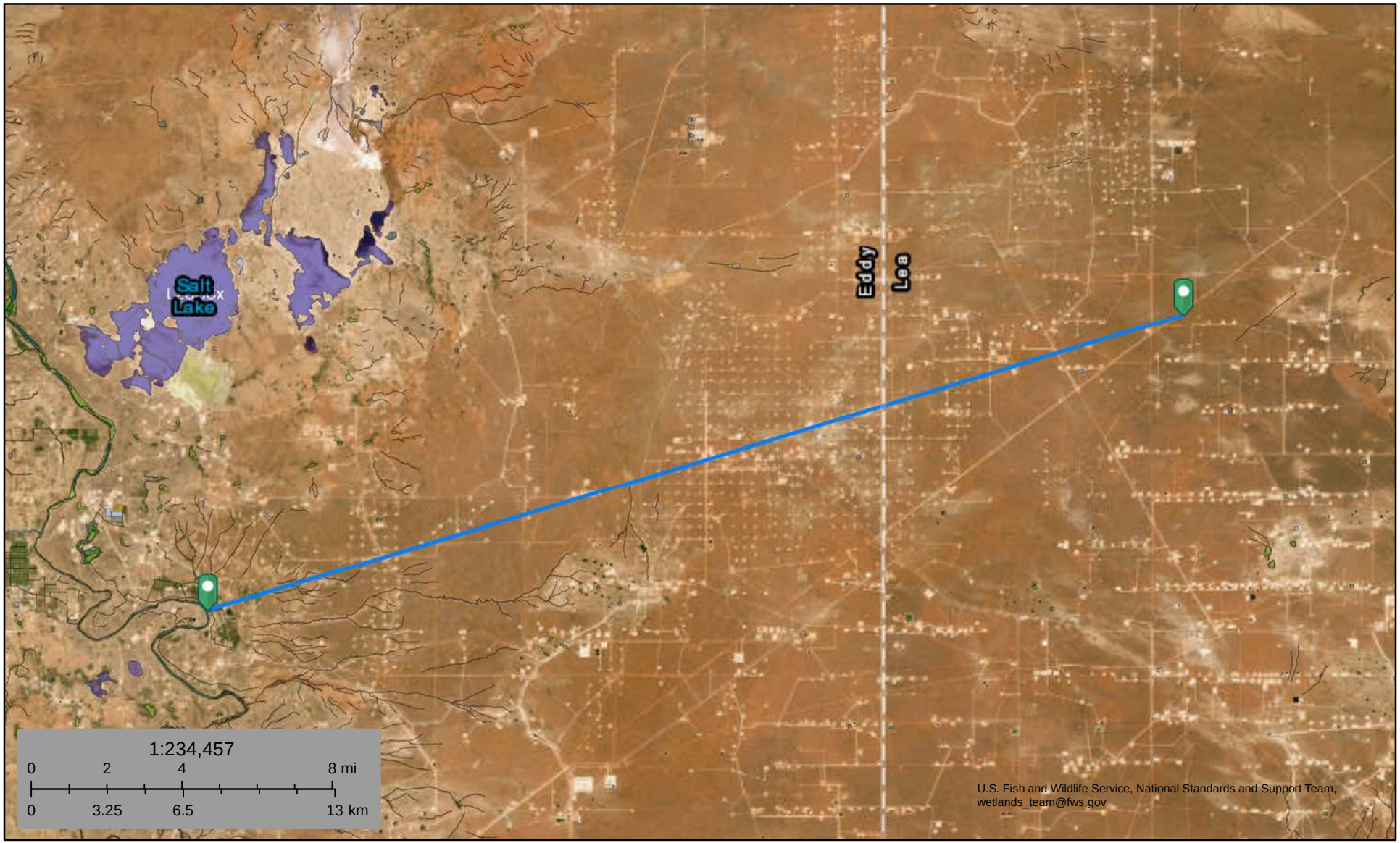
04/20/2006	2006	966263	A	RPT		0.753
07/19/2006	2006	9421	R	tw	Meter Rollover	1.324
11/27/2006	2006	90114	A	RPT		2.476
04/16/2007	2007	124935	A	tw		1.069
07/13/2007	2007	148838	A	tw		0.734
11/03/2007	2007	189325	A	RPT		1.243
04/15/2008	2008	230341	A	RPT		1.259
07/11/2008	2008	273176	A	RPT		1.315
01/08/2009	2008	375616	A	RPT		3.144
05/07/2009	2009	432782	A	RPT		1.754
07/06/2009	2009	465558	A	RPT		1.006
11/02/2009	2009	537994	A	tw		2.223
05/13/2010	2010	592265	A	RPT		1.666
08/23/2010	2010	598613	A	RPT		0.195
11/09/2010	2010	598791	A	RPT		0.005
02/13/2011	2011	599215	A	RPT		0.013
07/12/2011	2011	607344	A	RPT		0.249
01/10/2012	2012	608458	A	RPT		0.034
04/15/2012	2012	608566	A	RPT		0.003
03/20/2013	2012	608566	A	RPT		0
07/18/2013	2013	608566	A	RPT		0
07/22/2019	2019	896990	A	RPT		8.851
04/01/2020	2020	120850	R	RPT	Meter Rollover	6.870

**YTD Meter Amounts:	Year	Amount
	1999	3.290
	2000	4.996
	2001	2.764
	2002	2.906
	2003	2.677
	2004	2.299
	2005	1.984
	2006	4.553
	2007	3.046
	2008	5.718
	2009	4.983
	2010	1.866
	2011	0.262
	2012	0.037
	2013	0
	2019	8.851
	2020	6.870

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Rodney Robinson 023H Pad



June 30, 2023

Wetlands_Alaska

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

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Rodney Robinson 023H Pad

June 30, 2023

Wetlands_Alaska

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
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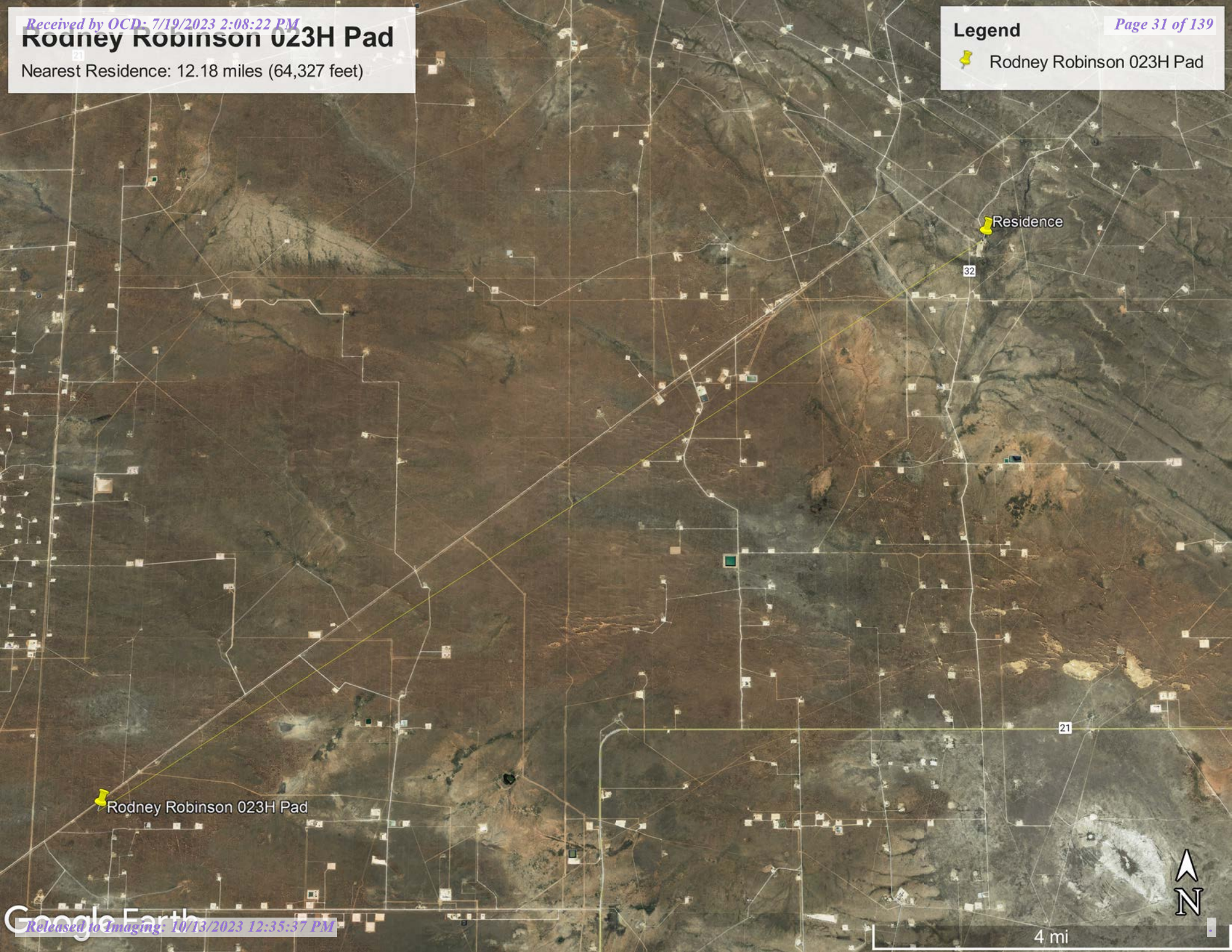
- Riverine

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.

Rodney Robinson 023H Pad

Nearest Residence: 12.18 miles (64,327 feet)



Rodney Robinson 023H Pad

7/7/2023, 1:13:25 PM

Override 1

GIS WATERS PODs

GIS WATERS PODs

OSE District Boundary

Water Right Regulations

Closure Area

New Mexico State Trust Lands

Subsurface Estate

Surface Estate

Both Estates

SiteBoundaries

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

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

Web Generated Map

Map is generated by web users.

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03562 **Subbasin:** C **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: PMT PERMIT

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

Total Diversion: 3 **Cause/Case:** -

Owner: LIMESTONE BASIN PROPERTIES

Contact: JOHN LANGDON

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	642075	COWNF	2019-03-21	CHG	PRC	C 03562	T		0	
get images	507817	COWNF	2012-07-20	PMT	APR	C 03562	T		3	

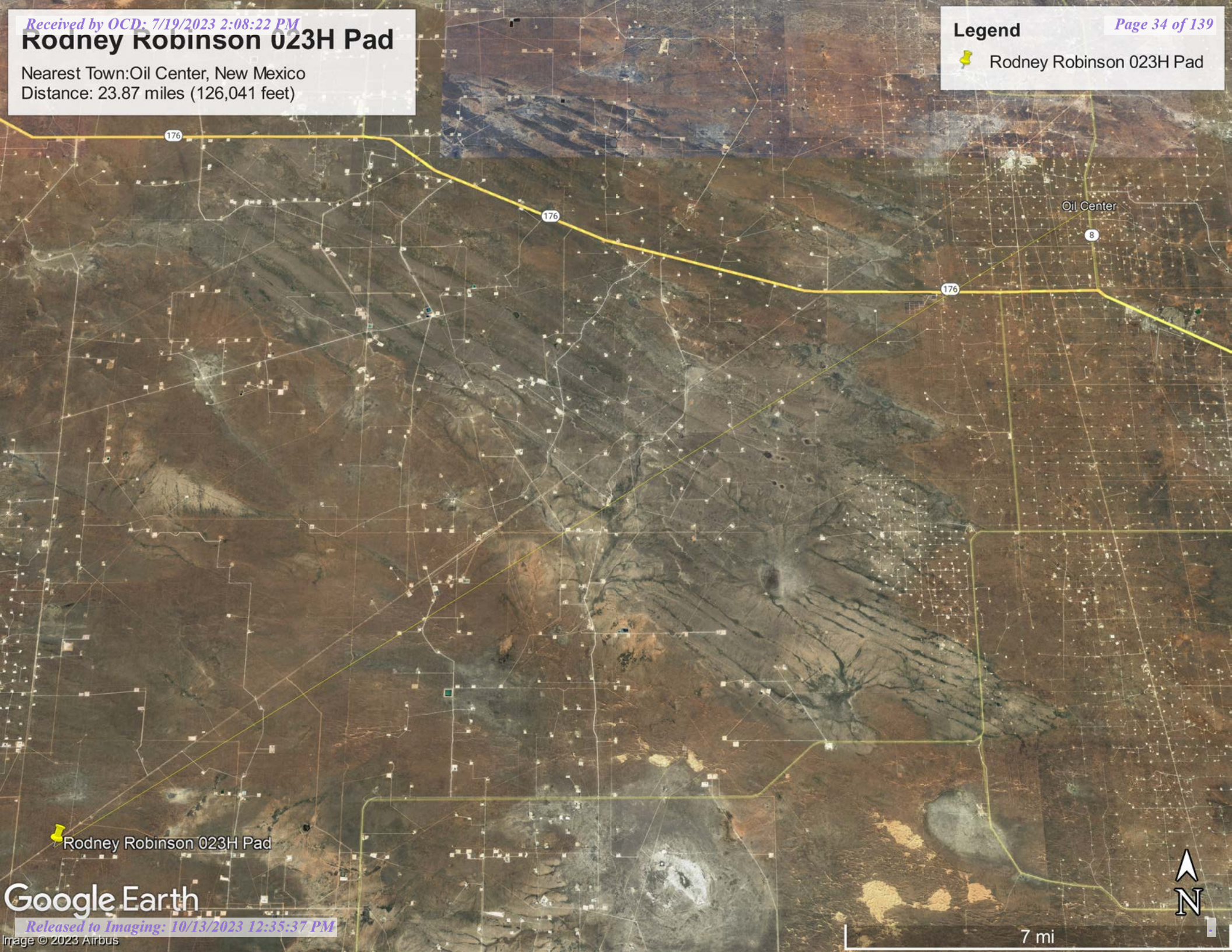
Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03562 POD1			3	2	4	17	23S	33E	632747	3574765	

Rodney Robinson 023H Pad

Nearest Town:Oil Center, New Mexico
Distance: 23.87 miles (126,041 feet)



U.S. Fish and Wildlife Service
National Wetlands Inventory

Rodney Robinson 023H Pad

June 30, 2023

Wetlands_Alaska

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
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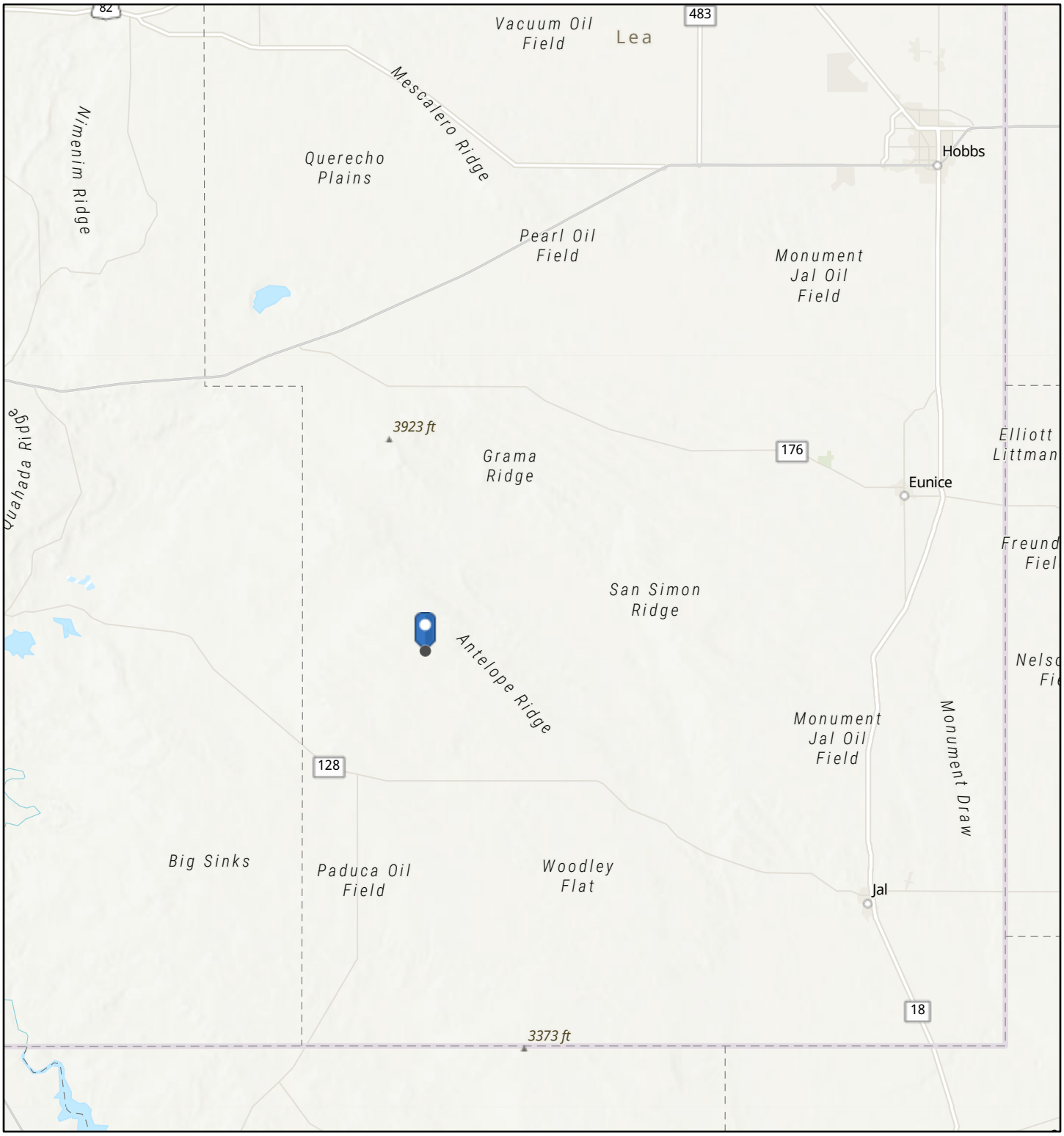
Rodney Robinson 023H Pad



7/11/2023, 1:30:24 PM

1:577,791

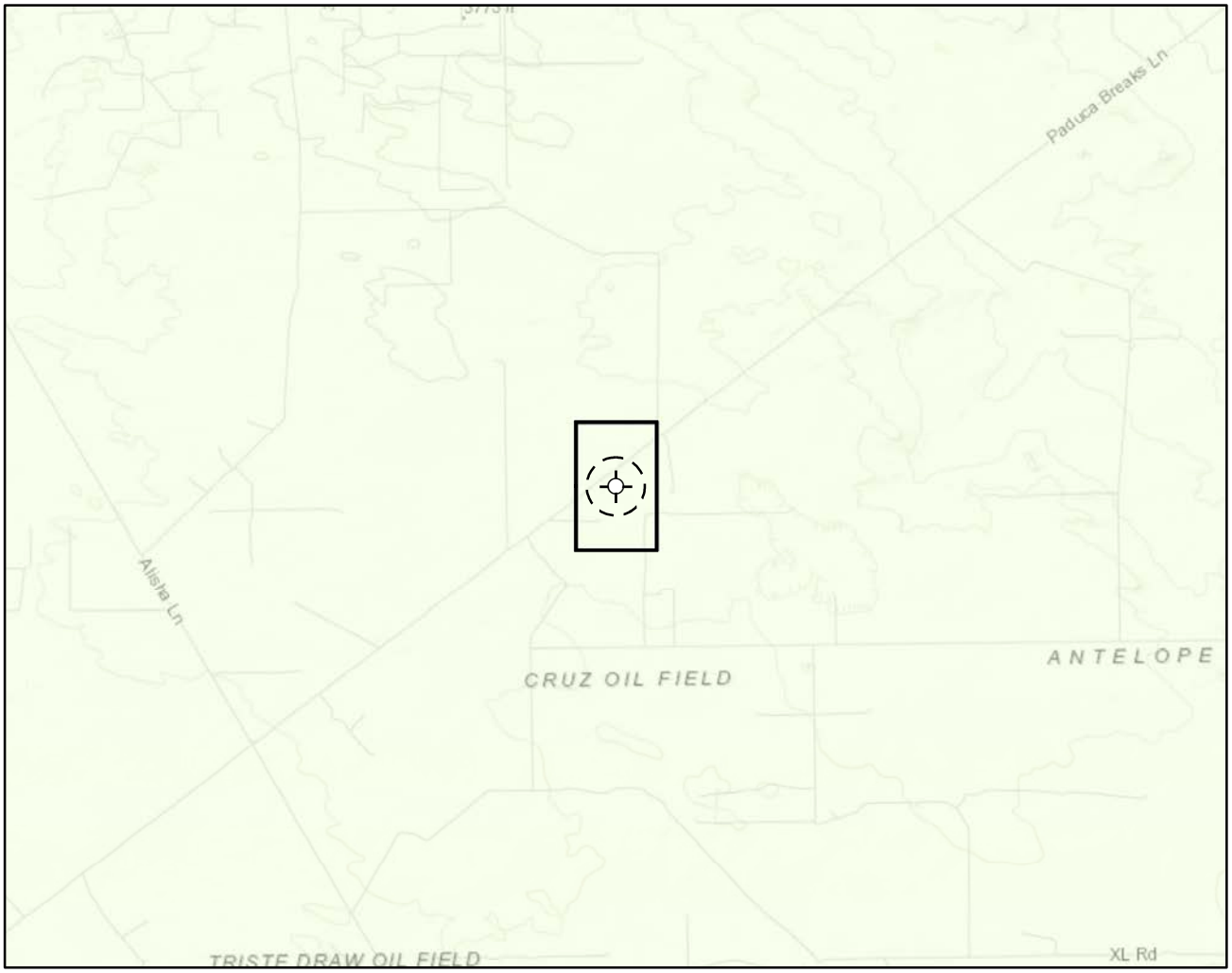
0 4.25 8.5 17 mi

0 5 10 20 km

New Mexico State University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NM Coal Mine Reclamation Program, NM EMNRD, Esri, CGIAR, USGS

EMNRD MMD GIS Coordinator

New Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappbuilder/index.html?id=7ebfa3c432db42978d66c99a9cc8311a)



Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.313340, -103.607613

NAD 1983 UTM Zone 13N
Date: Jul 11/23

N

Karst Potential Schematic
Rodney Robinson 023H Pad

FIGURE:
X

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

Note: Inset Map, ESRI 2022; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects\Husky\W4M\080-24 (04-22-080-24 W4M)\Figure X Karst Potential Schematic (23E-00084).mxd

National Flood Hazard Layer FIRMette

FEMA

103°36'46"W 32°19'3"N

103°36'8"W 32°18'33"N

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

1:6,000

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

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/10/2023 at 6:32 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Soil Map—Lea County, New Mexico

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KD	Kermit-Palomas fine sands, 0 to 12 percent slopes	0.5	9.9%
PU	Pyote and Maljamar fine sands	4.9	90.1%
Totals for Area of Interest		**5.5**	**100.0%**

Lea County, New Mexico

KD—Kermit-Palomas fine sands, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: dmpv
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 70 percent
Palomas and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave, linear, convex
Across-slope shape: Convex
Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand
C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A
Ecological site: R070BD005NM - Deep Sand
Hydric soil rating: No

Description of Palomas

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 16 inches: fine sand
Bt - 16 to 60 inches: sandy clay loam
Bk - 60 to 66 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 50 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

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

Minor Components

Pyote

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

Maljamar

Percent of map unit: 4 percent

Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Palomas

Percent of map unit: 1 percent
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

Data Source Information

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

Lea County, New Mexico

PU—Pyote and Maljamar fine sands

Map Unit Setting

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

Map Unit Composition

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

Description of Pyote

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Description of Maljamar

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: R070BC022NM - Sandhills

Hydric soil rating: No

Data Source Information

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

USDA Natural Resources Conservation Service

Ecological site R070BD003NM
Loamy Sand

Accessed: 07/07/2023

General information

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

Figure 1. Mapped extent

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

Associated sites

R070BD004NM	**Sandy** Sandy
R070BD005NM	**Deep Sand** Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site is on uplands, plains, dunes, fan piedmonts and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock. Slope range on this site range from 0 to 9 percent with the average of 5 percent.

Low stabilized dunes may occur occasionally on this site. Elevations range from 2,800 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Alluvial fan (3) Dune
Elevation	2,800–5,000 ft
Slope	0–9%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes.

The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam.

Subsurface is a loamy fine sand, coarse sandy loam, fine sandy loam or loam that averages less than 18 percent clay and less than 15 percent carbonates.

Substratum is a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

These soils, if unprotected by plant cover and organic residue, become wind blown and low hummocks are formed.

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

Characteristic soils are:
Maljamar
Berino
Parjarito
Palomas
Wink
Pyote

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Fine sandy loam (3) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid

Soil depth	40–72 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–7 in
Calcium carbonate equivalent (0-40in)	3–40%
Electrical conductivity (0-40in)	2–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	4–12%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

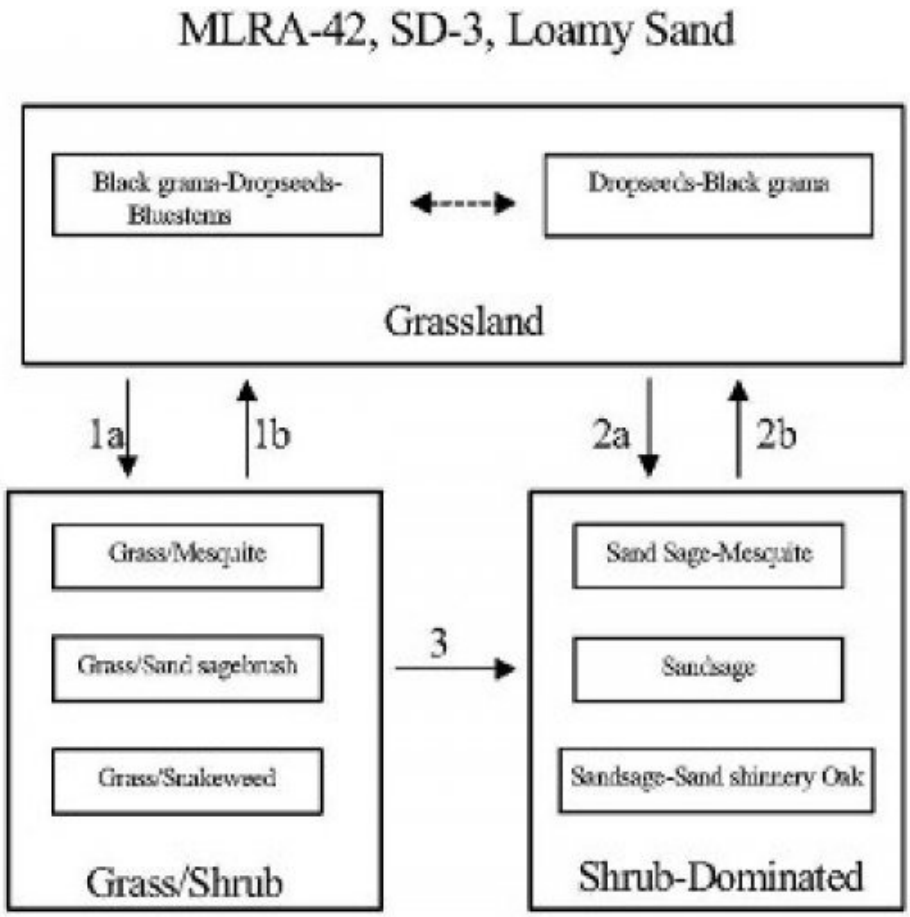
Overview

The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (sandy loam and fine sandy loam) surfaces. Although Loamy Sand and Deep Sand sites have similar surface textures, the depth to a textural change is different—Loamy Sand sub-surface textures typically increase in clay at approximately 20 to 30 inches, and Deep Sand sites not until around 40 inches.

The historic plant community of Loamy Sand sites is dominated by black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*). Perennial and annual forb abundance and distribution are dependent on precipitation. Litter and to a lesser extent, bare ground, are a significant proportion of ground cover while grasses compose the remainder. Decreases in black grama indicate a transition to either a grass/shrub or shrub-dominated state. The grass/shrub state is composed of grasses/honey mesquite (*Prosopis glandulosa*), grasses/broom snakeweed (*Gutierrezia sarothrae*), or grasses/sand sage. The shrub-dominated state occurs after a severe loss of grass cover and a prevalence of sand sage with secondary shinnery oak and mesquite. Heavy grazing intensity and/or drought are influential drivers in decreasing black grama and bluestems and subsequently increasing shrub cover, erosion, and bare patches. Historical fire suppression also encourages shrub pervasiveness and a competitive advantage over grass species (McPherson 1995). Brush and grazing management, however, may reverse grass/shrub and shrub-dominated states toward the grassland-dominated historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram):



1a. Drought, over grazing, fire suppression.
1b. Brush control, prescribed grazing

2.a Severe loss of grass cover, fire suppression, erosion.
2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: The historic plant community is a uniformly distributed grassland dominated by black grama, dropseeds, and bluestems. Sand sage and shinnery oak are evenly dispersed throughout the grassland due to the coarse soil

surface texture. Perennial and annual forbs are common but their abundance and distribution are reflective of precipitation. Bluestems initially, followed by black grama, decrease with drought and heavy grazing intensity. Historical fire frequency is unknown but likely occurred enough to remove small shrubs to the competitive advantage of grass species. Fire suppression, drought conditions, and excessive grazing drive most grass species out of competition with shrub species. Diagnosis: Grassland dominated by black grama, dropseeds, and bluestems. Shrubs, such as sand sage, shinnery oak, and mesquite are dispersed throughout the grassland. Forbs are present and populations fluctuate with precipitation variability.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	442	833	1224
Forb	110	208	306
Shrub/Vine	98	184	270
Total	**650**	**1225**	**1800**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	28%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	22%

Figure 5. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community .

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

Grass/Shrub State: The grass/shrub state is dominated by communities of grasses/mesquite, grasses/snakeweed, or grasses/sand sage. Decreases in black grama and bluestem species lead to an increase in bare patches and mesquite which further competes with grass species. An increase of dropseeds and threeawns occurs. Grass distribution becomes more patchy with an absence or severe decrease in black grama and bluestems. Mesquite provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Mesquite mortality when exposed to fire is low due to aggressive resprouting abilities. Herbicide application combined with subsequent prescribed fire may be more effective in mesquite reduction (Britton and Wright 1971). Diagnosis: This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Dropseeds and threeawns have a patchy distribution. Transition to Grass/Shrub State (1a): The historic plant community begins to shift toward the grass/shrub state as drivers such as drought, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by a decrease in black grama with a subsequent increase of dropseeds, threeawns, mesquite, and snakeweed. Snakeweed has been documented to outcompete black grama especially under conditions of fire suppression and drought (McDaniel et al. 1984). Key indicators of approach to transition: • Loss of black grama cover • Surface soil erosion • Bare patch expansion • Increased dropseed/threeawn and mesquite, snakeweed, or sand sage abundances Transition to Historic Plant Community (1b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community.

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

Shrub-Dominated State: The shrub-dominated state results from a severe loss of grass cover. This state's primary species is sand sage. Shinnery oak and mesquite also occur; however, grass cover is limited to intershrub distribution. Sand sage stabilizes light sandy soils from wind erosion, which enhances protected grass/forb cover (Davis and Bonham 1979). However, shinnery oak also responds to the sandy soils with dense stands due to an

aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state. Key indicators of approach to transition: • Severe loss of grass species cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite abundance Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state. Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite. Key indicators of approach to transition: • Continual loss of dropseeds/threeawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threeawn and mesquite/snakeweed abundance

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Warm Season**			61–123	
	little bluestem	SCSC	*Schizachyrium scoparium*	61–123	–
2	**Warm Season**			37–61	
	sand bluestem	ANHA	*Andropogon hallii*	37–61	–
3	**Warm Season**			37–61	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	37–61	–
	silver bluestem	BOSA	*Bothriochloa saccharoides*	37–61	–
4	**Warm Season**			123–184	
	black grama	BOER4	*Bouteloua eriopoda*	123–184	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	123–184	–
5	**Warm Season**			123–184	
	thin paspalum	PASE5	*Paspalum setaceum*	123–184	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	123–184	–
	fringed signalgrass	URCI	*Urochloa ciliatissima*	123–184	–
6	**Warm Season**			123–184	
	spike dropseed	SPCO4	*Sporobolus contractus*	123–184	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	123–184	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	123–184	–
7	**Warm Season**			61–123	
	hooded windmill grass	CHCU2	*Chloris cucullata*	61–123	–
	Arizona cottontop	DICA8	*Digitaria californica*	61–123	–
9	**Other Perennial Grasses**			37–61	
	Grass, perennial	2GP	*Grass, perennial*	37–61	–
Shrub/Vine					
8	**Warm Season**			37–61	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	37–61	–
	giant dropseed	SPGI	*Sporobolus giganteus*	37–61	–
10	**Shrub**			61–123	

	sand sagebrush	ARFI2	*Artemisia filifolia*	61–123	–
	Havard oak	QUHA3	*Quercus havardii*	61–123	–
11	**Shrub**			34–61	
	fourwing saltbush	ATCA2	*Atriplex canescens*	37–61	–
	featherplume	DAFO	*Dalea formosa*	37–61	–
12	**Shrub**			37–61	
	jointfir	EPHED	*Ephedra*	37–61	–
	littleleaf ratany	KRER	*Krameria erecta*	37–61	–
13	**Other Shrubs**			37–61	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	37–61	–
Forb					
14	**Forb**			61–123	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	61–123	–
	Indian blanket	GAPU	*Gaillardia pulchella*	61–123	–
	globemallow	SPHAE	*Sphaeralcea*	61–123	–
15	**Forb**			12–37	
	woolly groundsel	PACA15	*Packera cana*	12–37	–
16	**Forb**			61–123	
	touristplant	DIWI2	*Dimorphocarpa wislizeni*	61–123	–
	woolly plantain	PLPA2	*Plantago patagonica*	61–123	–
17	**Other Forbs**			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	37–61	–

Animal community

This Ecological Site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, desert cottontail, spotted ground squirrel, black-tailed prairie dog, yellow faced pocket gopher, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, roadrunner, meadowlark, burrowing owl, white necked raven, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake, dusty hognose snake and ornate box turtle.
Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson's hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.
Hydrologic Interpretations
Soil Series Hydrologic Group
Berino B
Kinco A
Maljamar B
Pajarito B
Palomas B
Wink B
Pyote A

Recreational uses

This site offers recreation potential for hiking, borseback riding, nature observation, photography and hunting. During years of abundant spring moisture, this site displays a colorful array of wildflowers during May and June.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all kinds and classes of livestock at any time of year. In cases where this site has been invaded by brush species it is especially suited for goats. Mismanagement of this site will cause a decrease in species such as the bluestems, blsck grama, bush muhly, plains bristlegrass, New Mexico feathergrass, Arizona cottontop and fourwing saltbush. A corresponding increase in the dropseeds, windmill grass, fall witchgrass, silver bluestem, sand sagebrush, shinery oak and ephedra will occur. This will also cause an increase in bare ground which will increase soil erodibility. This site will respond well to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.3 – 3.5
75 – 51 3.0 – 4.5
50 – 26 4.6 – 9.0
25 – 0 9.1 +

Inventory data references

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

Other references

Literature Cited:

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Herbel, C. H, Steger, R, Gould, W. L. 1974. Managing semidesert ranges of the Southwest Circular 456. Las Cruces, NM: New Mexico State University, Cooperative Extension Service. 48 p.

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McPherson, Guy R. 1995. The role of fire in the desert grasslands. In: McClaran, Mitchel P.; Van Devender, Thomas R., eds. The desert grassland. Tucson, AZ: The University of Arizona Press: 130-151.

Pettit, Russell D. 1986. Sand shinnery oak: control and management. Management Note 8. Lubbock, TX: Texas Tech University, College of Agricultural Sciences, Department of Range and Wildlife Management. 5 p.

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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

Indicators

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

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

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

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

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

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

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

---

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

---

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

---

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

---

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

---

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

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

---

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

---

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

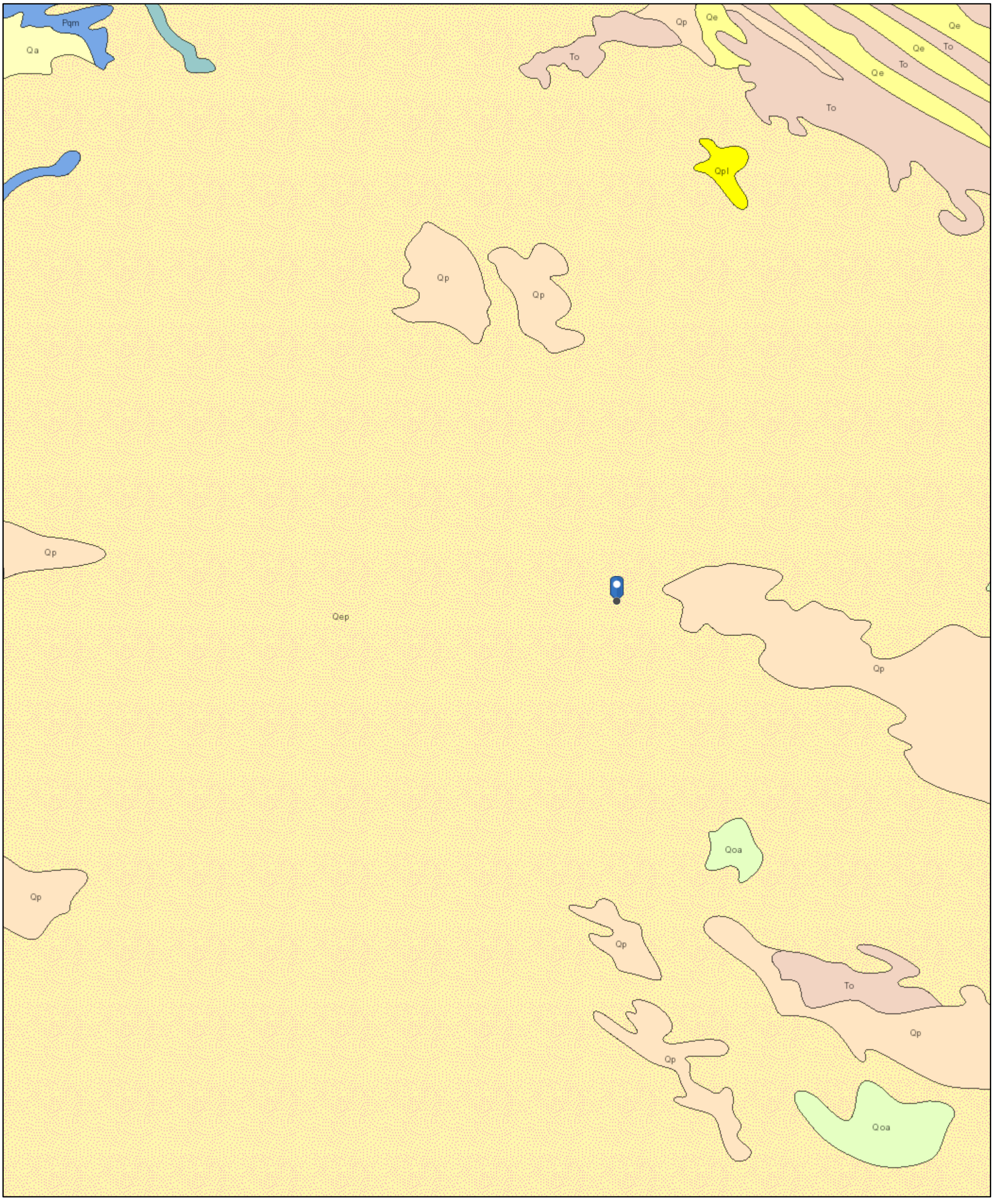
---

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

---

17. **Perennial plant reproductive capability:**

Rodney Robinson 023H Pad



7/7/2023, 3:06:40 PM

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perenial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)

1:144,448

0 1.25 2.5 5 mi

0 2.25 4.5 9 km

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census

ArcGIS Web AppBuilder

APPENDIX C – Daily Field Reports

Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	6/9/2023
Site Location Name:	Rodney Robinson 023H Pad	Report Run Date:	6/13/2023 9:07 PM
Client Contact Name:	Arsenio Jones	API #:	
Client Contact Phone #:	(575)361-4333		
Unique Project ID		Project Owner:	Clinton Talley
Project Reference #		Project Manager:	Monica Peppin

Summary of Times

Arrived at Site	6/9/2023 9:00 AM
Departed Site	6/9/2023 12:09 PM

Field Notes

10:03 Based off sampling completed where treated water release occurred a spot to the depth of 5’ will be completed at borehole 1 and a .5’ scrape will be completed from borehole 2 and connect across to borehole 4. Field screening for guidance to be able to complete confirmation sampling

11:19 Samples at 5’ a tad elevated. Excavation to go to 6’and widen walls

12:00 Excavation at 6’ depth is under criteria. Confirmation samples to be collected on Monday due to sample notification

Next Steps & Recommendations

1. Confirmation sampling
2. Lab results
3. Closure report

Daily Site Visit Report

Site Photos

Viewing Direction: South	**Viewing Direction**: South
	
Excavation area	Excavation
Viewing Direction: West	**Viewing Direction**: Southwest
	
Excavation	Excavation

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: Northeast
	
Excavation	Excavation
Viewing Direction: North	**Viewing Direction**: West
	
Excavation	Excavation

Daily Site Visit Report

Viewing Direction: Southwest	**Viewing Direction**: North
	
Excavation	Excavation

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature: 

Daily Site Visit Report

Client:	Matador Resources	Inspection Date:	
Site Location Name:	Rodney Robinson 023H Pad	Report Run Date:	6/25/2023 7:55 PM
Client Contact Name:	Arsenio Jones	API #:	
Client Contact Phone #:	(575)361-4333		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	
Departed Site	

Field Notes

10:21 On site to confirm completion of backfill.

10:21 Backfill is complete.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Southeast	**Viewing Direction**: South
	
Backfill complete	Backfill complete
Viewing Direction: Southwest	**Viewing Direction**: Northwest
	
Backfill complete	Backfill complete

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: East
	
Backfill complete	Backfill complete

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Zachery Englebert

Signature:

APPENDIX D – Notifications

Gmail Dhugal Hanton <vertexresourcegroupusa@gmail.com>

nAPP2300955113 Extension Request Rodney Robinson 023H Pad

2 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com> Wed, Feb 8, 2023 at 11:46 AM
To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, spills@slo.state.nm.us
Cc: Arsenio Jones <arsenio.jones@matadorresources.com>, clinton.talley@matadorresources.com

All,

Please accept this as an extension request for the below site.

Rodney Robinson 023H Pad DOR: 1/09/2023

The original 90 day mark is scheduled for April 9, 2023. We are requesting an additional 120 day extension from April 9, 2023 for the following reasons:

- Continuous construction and activity on the well pad is preventing Vertex from completing Characterization and remediation efforts.
- Following the construction, a workover rig will be onsite further preventing Vertex from safely completing field work for characterization and any remediation efforts.

We would like this additional time to allow for any and all additional construction work to be completed in order for Vertex to safely arrive onsite and assess the efforts of remediation.

Vertex and Matador will complete remediation efforts by August 7, 2023.

If you have any questions or concerns please let me know.

Thank you,

MP

Monica Peppin, A.S.
Project Manager

Vertex Resource Services Inc.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov> Wed, Feb 8, 2023 at 2:00 PM
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Harimon, Jocelyn, EMNRD" <Jocelyn.Harimon@emnrd.nm.gov>, "Hamlet, Robert, EMNRD" <Robert.Hamlet@emnrd.nm.gov>

Hello Monica

OCD approves your request for an additional 120-day extension to August 07, 2023 to submit a remediation plan or closure report for the given reasons stated below. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thanks,

Jennifer Nobui

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Wednesday, February 8, 2023 11:59 AM
To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>
Subject: FW: [EXTERNAL] nAPP2300955113 Extension Request Rodney Robinson 023H Pad

Jocelyn Harimon ● Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

1220 South St. Francis Drive | Santa Fe, NM 87505

(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http:// **www.emnrd.nm.gov**

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Wednesday, February 8, 2023 11:47 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; spills@slo.state.nm.us
Cc: Arsenio Jones <arsenio.jones@matadorresources.com>; clinton.talley@matadorresources.com
Subject: [EXTERNAL] nAPP2300955113 Extension Request Rodney Robinson 023H Pad

[Quoted text hidden]

Gmail Dhugal Hanton <vertexresourcegroupusa@gmail.com>

nAPP2300955113 Confirmation Sample Notice Rodney Robinson

3 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com> Thu, Jun 8, 2023 at 1:37 PM
To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, spills@slo.state.nm.us
Cc: Clinton Talley <clinton.talley@matadorresources.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled confirmatory sampling to be conducted at the Rodney Robinson #023H Pad for the following release:

nAPP2300955113 DOR: January 9, 2023

This work will be completed on behalf of Matador Production Company.

On Monday, June 12th, 2023 at approximately 8:30 a.m., Monica Peppin of Vertex will be onsite to conduct confirmation sampling for the above release.

I can be reached at 575-361-9880. If you need directions to the site, please do not hesitate to contact me. If you have any questions or concerns regarding this notification, please give me a call at 575-361-9880.

Thank you,
Monica

Monica Peppin, A.S.
Project Manager

Vertex Resource Services Inc.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

SLO Spills <spills@slo.state.nm.us> Fri, Jun 9, 2023 at 7:15 AM
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: Clinton Talley <clinton.talley@matadorresources.com>

Received

Environmental

Compliance Office

Surface Resources Division

New Mexico State Land Office

nmstatelands.org

[Quoted text hidden]

image001.jpg
44K

Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov> Fri, Jun 9, 2023 at 8:23 AM
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Velez, Nelson, EMNRD" <Nelson.Velez@emnrd.nm.gov>

Monica,

Please be aware that notification requirements are **two business days**, per rule. You may proceed on your schedule. This, and all correspondence, should be included in the closure report to ensure inclusion in the project file.

JH

Jocelyn Harimon ● Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

1220 South St. Francis Drive | Santa Fe, NM 87505

(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http:// **www.emnrd.nm.gov**

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Thursday, June 8, 2023 1:37 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; spills@slo.state.nm.us
Cc: Clinton Talley <clinton.talley@matadorresources.com>
Subject: [EXTERNAL] nAPP2300955113 Confirmation Sample Notice Rodney Robinson

[Quoted text hidden]

APPENDIX E – Laboratory Data Report(s) and Chain of Custody Form(s)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 26, 2023

Monica Peppin

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Rodney Robinson 023 H Pad OrderNo.: 2305810

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 15 sample(s) on 5/16/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 0'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:00:00 AM
Lab ID: 2305810-001 **Matrix:** SOIL **Received Date:** 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	290	9.6		mg/Kg	1	5/18/2023 7:47:25 PM
Motor Oil Range Organics (MRO)	110	48		mg/Kg	1	5/18/2023 7:47:25 PM
Surr: DNOP	95.7	69-147		%Rec	1	5/18/2023 7:47:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2023 5:27:32 PM
Surr: BFB	63.7	15-244		%Rec	1	5/20/2023 5:27:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/20/2023 5:27:32 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2023 5:27:32 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2023 5:27:32 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/20/2023 5:27:32 PM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	5/20/2023 5:27:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1600	60		mg/Kg	20	5/20/2023 1:55:46 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 2'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:05:00 AM
Lab ID: 2305810-002 **Matrix:** SOIL **Received Date:** 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/18/2023 8:34:49 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/18/2023 8:34:49 PM
Surr: DNOP	97.2	69-147		%Rec	1	5/18/2023 8:34:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/20/2023 6:14:18 PM
Surr: BFB	73.6	15-244		%Rec	1	5/20/2023 6:14:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/20/2023 6:14:18 PM
Toluene	ND	0.050		mg/Kg	1	5/20/2023 6:14:18 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/20/2023 6:14:18 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2023 6:14:18 PM
Surr: 4-Bromofluorobenzene	99.1	39.1-146		%Rec	1	5/20/2023 6:14:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	80	60		mg/Kg	20	5/20/2023 2:08:10 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 4'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:10:00 AM
Lab ID: 2305810-003 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/18/2023 8:58:33 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/18/2023 8:58:33 PM
Surr: DNOP	83.2	69-147		%Rec	1	5/18/2023 8:58:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2023 6:37:42 PM
Surr: BFB	82.1	15-244		%Rec	1	5/20/2023 6:37:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/20/2023 6:37:42 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2023 6:37:42 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2023 6:37:42 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2023 6:37:42 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	5/20/2023 6:37:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	760	61		mg/Kg	20	5/20/2023 2:20:35 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 0'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:20:00 AM
Lab ID: 2305810-004 **Matrix:** SOIL **Received Date:** 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/18/2023 9:22:18 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/18/2023 9:22:18 PM
Surr: DNOP	83.4	69-147		%Rec	1	5/18/2023 9:22:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2023 7:01:08 PM
Surr: BFB	69.2	15-244		%Rec	1	5/20/2023 7:01:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/20/2023 7:01:08 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2023 7:01:08 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2023 7:01:08 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/20/2023 7:01:08 PM
Surr: 4-Bromofluorobenzene	96.8	39.1-146		%Rec	1	5/20/2023 7:01:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	690	59		mg/Kg	20	5/20/2023 2:33:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 2'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:25:00 AM
Lab ID: 2305810-005 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/18/2023 9:46:00 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/18/2023 9:46:00 PM
Surr: DNOP	89.7	69-147		%Rec	1	5/18/2023 9:46:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2023 7:24:24 PM
Surr: BFB	75.4	15-244		%Rec	1	5/20/2023 7:24:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/20/2023 7:24:24 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2023 7:24:24 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2023 7:24:24 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2023 7:24:24 PM
Surr: 4-Bromofluorobenzene	99.3	39.1-146		%Rec	1	5/20/2023 7:24:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	81	60		mg/Kg	20	5/20/2023 2:45:24 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 4'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:30:00 AM
Lab ID: 2305810-006 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/18/2023 10:09:41 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/18/2023 10:09:41 PM
Surr: DNOP	95.5	69-147		%Rec	1	5/18/2023 10:09:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/20/2023 7:47:38 PM
Surr: BFB	81.2	15-244		%Rec	1	5/20/2023 7:47:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/20/2023 7:47:38 PM
Toluene	ND	0.048		mg/Kg	1	5/20/2023 7:47:38 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/20/2023 7:47:38 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/20/2023 7:47:38 PM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	5/20/2023 7:47:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	59		mg/Kg	20	5/20/2023 2:57:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 0'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:40:00 AM
Lab ID: 2305810-007 **Matrix:** SOIL **Received Date:** 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	11	9.4		mg/Kg	1	5/18/2023 10:33:22 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/18/2023 10:33:22 PM
Surr: DNOP	94.0	69-147		%Rec	1	5/18/2023 10:33:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/20/2023 8:10:57 PM
Surr: BFB	67.9	15-244		%Rec	1	5/20/2023 8:10:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/20/2023 8:10:57 PM
Toluene	ND	0.047		mg/Kg	1	5/20/2023 8:10:57 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/20/2023 8:10:57 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/20/2023 8:10:57 PM
Surr: 4-Bromofluorobenzene	97.5	39.1-146		%Rec	1	5/20/2023 8:10:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	72	60		mg/Kg	20	5/20/2023 3:59:51 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 2'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:45:00 AM
Lab ID: 2305810-008 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	15	9.4		mg/Kg	1	5/18/2023 10:57:05 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/18/2023 10:57:05 PM
Surr: DNOP	89.0	69-147		%Rec	1	5/18/2023 10:57:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/20/2023 8:34:23 PM
Surr: BFB	70.1	15-244		%Rec	1	5/20/2023 8:34:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	5/20/2023 8:34:23 PM
Toluene	ND	0.046		mg/Kg	1	5/20/2023 8:34:23 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/20/2023 8:34:23 PM
Xylenes, Total	ND	0.092		mg/Kg	1	5/20/2023 8:34:23 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	5/20/2023 8:34:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/20/2023 4:37:05 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 4'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 10:50:00 AM
Lab ID: 2305810-009 **Matrix:** SOIL **Received Date:** 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/18/2023 11:20:46 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/18/2023 11:20:46 PM
Surr: DNOP	94.9	69-147		%Rec	1	5/18/2023 11:20:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/20/2023 8:57:52 PM
Surr: BFB	79.6	15-244		%Rec	1	5/20/2023 8:57:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	5/20/2023 8:57:52 PM
Toluene	ND	0.046		mg/Kg	1	5/20/2023 8:57:52 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/20/2023 8:57:52 PM
Xylenes, Total	ND	0.092		mg/Kg	1	5/20/2023 8:57:52 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	5/20/2023 8:57:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/20/2023 4:49:29 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 0'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 11:00:00 AM
Lab ID: 2305810-010 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/18/2023 11:44:24 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/18/2023 11:44:24 PM
Surr: DNOP	97.2	69-147		%Rec	1	5/18/2023 11:44:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2023 9:21:13 PM
Surr: BFB	66.3	15-244		%Rec	1	5/20/2023 9:21:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/20/2023 9:21:13 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2023 9:21:13 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2023 9:21:13 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/20/2023 9:21:13 PM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	5/20/2023 9:21:13 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2100	60		mg/Kg	20	5/20/2023 5:01:53 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 2'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 11:05:00 AM
Lab ID: 2305810-011 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	5/19/2023 12:08:05 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/19/2023 12:08:05 AM
Surr: DNOP	85.0	69-147		%Rec	1	5/19/2023 12:08:05 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/20/2023 9:44:30 PM
Surr: BFB	72.2	15-244		%Rec	1	5/20/2023 9:44:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/20/2023 9:44:30 PM
Toluene	ND	0.049		mg/Kg	1	5/20/2023 9:44:30 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/20/2023 9:44:30 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/20/2023 9:44:30 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	5/20/2023 9:44:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	230	60		mg/Kg	20	5/20/2023 5:14:18 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 4'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 11:10:00 AM
Lab ID: 2305810-012 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/18/2023 6:12:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/18/2023 6:12:55 PM
Surr: DNOP	95.9	69-147		%Rec	1	5/18/2023 6:12:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/22/2023 4:13:00 PM
Surr: BFB	88.6	15-244		%Rec	1	5/22/2023 4:13:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/22/2023 4:13:00 PM
Toluene	ND	0.048		mg/Kg	1	5/22/2023 4:13:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/22/2023 4:13:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/22/2023 4:13:00 PM
Surr: 4-Bromofluorobenzene	85.2	39.1-146		%Rec	1	5/22/2023 4:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	520	60		mg/Kg	20	5/20/2023 5:26:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 0'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 11:20:00 AM
Lab ID: 2305810-013 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/18/2023 6:45:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/18/2023 6:45:08 PM
Surr: DNOP	98.0	69-147		%Rec	1	5/18/2023 6:45:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/22/2023 5:18:00 PM
Surr: BFB	89.7	15-244		%Rec	1	5/22/2023 5:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/22/2023 5:18:00 PM
Toluene	ND	0.050		mg/Kg	1	5/22/2023 5:18:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/22/2023 5:18:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/22/2023 5:18:00 PM
Surr: 4-Bromofluorobenzene	84.8	39.1-146		%Rec	1	5/22/2023 5:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	210	60		mg/Kg	20	5/20/2023 5:39:07 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 2'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 11:25:00 AM
Lab ID: 2305810-014 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/18/2023 6:55:51 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/18/2023 6:55:51 PM
Surr: DNOP	99.8	69-147		%Rec	1	5/18/2023 6:55:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/22/2023 7:27:00 PM
Surr: BFB	86.3	15-244		%Rec	1	5/22/2023 7:27:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	5/22/2023 7:27:00 PM
Toluene	ND	0.047		mg/Kg	1	5/22/2023 7:27:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/22/2023 7:27:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/22/2023 7:27:00 PM
Surr: 4-Bromofluorobenzene	85.2	39.1-146		%Rec	1	5/22/2023 7:27:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/20/2023 5:51:31 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2305810**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 4'
Project: Rodney Robinson 023 H Pad
Collection Date: 5/10/2023 11:30:00 AM
Lab ID: 2305810-015 **Matrix:** SOIL
Received Date: 5/16/2023 4:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/18/2023 7:06:34 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/18/2023 7:06:34 PM
Surr: DNOP	99.0	69-147		%Rec	1	5/18/2023 7:06:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/23/2023 10:37:00 AM
Surr: BFB	87.5	15-244		%Rec	1	5/23/2023 10:37:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/23/2023 10:37:00 AM
Toluene	ND	0.047		mg/Kg	1	5/23/2023 10:37:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	5/23/2023 10:37:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	5/23/2023 10:37:00 AM
Surr: 4-Bromofluorobenzene	84.4	39.1-146		%Rec	1	5/23/2023 10:37:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/20/2023 6:28:45 PM

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **MB-75075** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **75075** RunNo: **96914**
Prep Date: **5/20/2023** Analysis Date: **5/20/2023** SeqNo: **3515810** Units: **mg/Kg**

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

Sample ID: **LCS-75075** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **75075** RunNo: **96914**
Prep Date: **5/20/2023** Analysis Date: **5/20/2023** SeqNo: **3515811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.7	90	110			

Sample ID: **MB-75076** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **75076** RunNo: **96914**
Prep Date: **5/20/2023** Analysis Date: **5/20/2023** SeqNo: **3515840** Units: **mg/Kg**

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

Sample ID: **LCS-75076** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **75076** RunNo: **96914**
Prep Date: **5/20/2023** Analysis Date: **5/20/2023** SeqNo: **3515841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **2305810-012AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-04 4'** Batch ID: **75032** RunNo: **96864**
Prep Date: **5/18/2023** Analysis Date: **5/18/2023** SeqNo: **3513475** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.2	45.87	0	101	54.2	135			
Surr: DNOP	4.1		4.587		89.9	69	147			

Sample ID: **2305810-012AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-04 4'** Batch ID: **75032** RunNo: **96864**
Prep Date: **5/18/2023** Analysis Date: **5/18/2023** SeqNo: **3513476** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.8	49.07	0	98.0	54.2	135	3.97	29.2	
Surr: DNOP	4.4		4.907		90.1	69	147	0	0	

Sample ID: **LCS-75011** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75011** RunNo: **96864**
Prep Date: **5/17/2023** Analysis Date: **5/18/2023** SeqNo: **3513540** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		92.6	69	147			

Sample ID: **LCS-75017** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75017** RunNo: **96864**
Prep Date: **5/17/2023** Analysis Date: **5/18/2023** SeqNo: **3513541** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.3	69	147			

Sample ID: **LCS-75032** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75032** RunNo: **96864**
Prep Date: **5/18/2023** Analysis Date: **5/18/2023** SeqNo: **3513542** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.9	61.9	130			
Surr: DNOP	4.1		5.000		82.2	69	147			

Sample ID: **MB-75011** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75011** RunNo: **96864**
Prep Date: **5/17/2023** Analysis Date: **5/18/2023** SeqNo: **3513544** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		92.9	69	147			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **MB-75017**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **75017**	RunNo: **96864**							
Prep Date: **5/17/2023**	Analysis Date: **5/18/2023**	SeqNo: **3513545**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		93.3	69	147			

Sample ID: **MB-75032**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **75032**	RunNo: **96864**							
Prep Date: **5/18/2023**	Analysis Date: **5/18/2023**	SeqNo: **3513546**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		90.2	69	147			

Sample ID: **MB-75016**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **75016**	RunNo: **96866**							
Prep Date: **5/17/2023**	Analysis Date: **5/18/2023**	SeqNo: **3513753**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		96.9	69	147			

Sample ID: **LCS-75016**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **75016**	RunNo: **96866**							
Prep Date: **5/17/2023**	Analysis Date: **5/18/2023**	SeqNo: **3513754**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.5	61.9	130			
Surr: DNOP	4.3		5.000		85.9	69	147			

Sample ID: **LCS-75018**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **75018**	RunNo: **96925**							
Prep Date: **5/17/2023**	Analysis Date: **5/22/2023**	SeqNo: **3517131**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.3		5.000		106	69	147			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **lcs-75007**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75007**	RunNo: **96874**
Prep Date: **5/17/2023**	Analysis Date: **5/20/2023**	SeqNo: **3515566** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	80.6	70	130			
Surr: BFB	4600		1000		462	15	244			S

Sample ID: **mb-75007**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75007**	RunNo: **96874**
Prep Date: **5/17/2023**	Analysis Date: **5/20/2023**	SeqNo: **3515568** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	710		1000		71.1	15	244			

Sample ID: **mb-75008**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75008**	RunNo: **96924**
Prep Date: **5/17/2023**	Analysis Date: **5/22/2023**	SeqNo: **3516999** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		89.9	15	244			

Sample ID: **lcs-75008**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75008**	RunNo: **96924**
Prep Date: **5/17/2023**	Analysis Date: **5/22/2023**	SeqNo: **3517000** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.1	70	130			
Surr: BFB	1900		1000		190	15	244			

Sample ID: **2305810-012ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-04 4'**	Batch ID: **75008**	RunNo: **96924**
Prep Date: **5/17/2023**	Analysis Date: **5/22/2023**	SeqNo: **3517002** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	24.06	0	86.0	70	130			
Surr: BFB	1900		962.5		195	15	244			

Sample ID: **2305810-012amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-04 4'**	Batch ID: **75008**	RunNo: **96924**
Prep Date: **5/17/2023**	Analysis Date: **5/22/2023**	SeqNo: **3517003** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **2305810-012amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-04 4'** Batch ID: **75008** RunNo: **96924**
Prep Date: **5/17/2023** Analysis Date: **5/22/2023** SeqNo: **3517003** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	24.02	0	87.7	70	130	1.74	20	
Surr: BFB	1800		960.6		186	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **LCS-75007** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **75007** RunNo: **96874**
Prep Date: **5/17/2023** Analysis Date: **5/20/2023** SeqNo: **3515580** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.4	70	130			
Toluene	0.91	0.050	1.000	0	91.4	70	130			
Ethylbenzene	0.93	0.050	1.000	0	92.5	70	130			
Xylenes, Total	2.8	0.10	3.000	0	92.1	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	39.1	146			

Sample ID: **mb-75007** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **75007** RunNo: **96874**
Prep Date: **5/17/2023** Analysis Date: **5/20/2023** SeqNo: **3515582** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.3	39.1	146			

Sample ID: **mb-75008** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **75008** RunNo: **96924**
Prep Date: **5/17/2023** Analysis Date: **5/22/2023** SeqNo: **3517006** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		87.0	39.1	146			

Sample ID: **lcs-75008** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **75008** RunNo: **96924**
Prep Date: **5/17/2023** Analysis Date: **5/22/2023** SeqNo: **3517007** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	91.2	70	130			
Toluene	0.91	0.050	1.000	0	90.6	70	130			
Ethylbenzene	0.89	0.050	1.000	0	88.7	70	130			
Xylenes, Total	2.6	0.10	3.000	0	88.1	70	130			
Surr: 4-Bromofluorobenzene	0.88		1.000		88.1	39.1	146			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305810**
26-May-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **2305810-013ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-05 0'** Batch ID: **75008** RunNo: **96924**
Prep Date: **5/17/2023** Analysis Date: **5/22/2023** SeqNo: **3517010** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.025	0.9930	0	83.7	70	130			
Toluene	0.83	0.050	0.9930	0	83.2	70	130			
Ethylbenzene	0.80	0.050	0.9930	0	80.7	70	130			
Xylenes, Total	2.4	0.099	2.979	0	80.5	70	130			
Surr: 4-Bromofluorobenzene	0.85		0.9930		85.1	39.1	146			

Sample ID: **2305810-013amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-05 0'** Batch ID: **75008** RunNo: **96924**
Prep Date: **5/17/2023** Analysis Date: **5/22/2023** SeqNo: **3517011** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.025	0.9891	0	82.5	70	130	1.87	20	
Toluene	0.81	0.049	0.9891	0	82.0	70	130	1.79	20	
Ethylbenzene	0.79	0.049	0.9891	0	80.3	70	130	0.872	20	
Xylenes, Total	2.4	0.099	2.967	0	79.3	70	130	1.92	20	
Surr: 4-Bromofluorobenzene	0.85		0.9891		85.6	39.1	146	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.
Work Order Number: 2305810
RcptNo: 1

Received By: Juan Rojas 5/16/2023 4:10:00 PM
Completed By: Cheyenne Cason 5/16/2023 4:39:03 PM
Reviewed By: 5/17/23

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: JM 5/17/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.0	Good	Not Present	Yogi		
2	0.5	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☒ Rush 5 Day

Project Name: Rodney Robinson 023H Pad

Project #: 23E-00084

Project Manager: Monica Peppin

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 2 9091

Cooler Temp(including CF): 2.9+0.1=3.0 (°C) 0.4+0.1=0.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name		Container Type and #	Preservative Type	HEAL No. 2305810
5/10	10:00	Soil	BH23-01	0'	4oz	Ice	001
	10:05			2'			002
	10:10			4'			003
	10:20		BH23-02	0'			004
	10:25			2'			005
	10:30			4'			006
	10:40		BH23-03	0'			007
	10:45			2'			008
	10:50			4'			009
	11:00		BH23-04	0'			010
	11:05			2'			011
	11:10			4'			012

Analysis Request	
BTEX / MTBE / TMB's (8021)	✓
TPH:8015D(GRO / DRO / MRO)	✓
8081 Pesticides/8082 PCB's	
EDB (Method 504.1)	
PAHs by 8310 or 8270SIMS	
RCRA 8 Metals	
Cl, F, Br, NO_3, NO_2, PO_4, SO_4	✓
8260 (VOA)	
8270 (Semi-VOA)	
Total Coliform (Present/Absent)	

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					5/12/23	1830
Date: 5/15/23	Time: 1900	Relinquished by:	Received by:	Via: courier	Date 5/16/23	Time 16:10

Remarks: Matador

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

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush 5 DAY

Project Name: Rodney Robinson 023H Pad

Project #: 23E-00084

Project Manager: Monica Peppin

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Yogi

Cooler Temp(Including CF): 2.9+0.1=3.0°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2305810	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	$Cl, F, Br, NO_3, NO_2, PO_4, SO_4$	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/10	11:20	soil	BH23-05 0	4oz	ice	013	✓	✓					✓			
"	11:25	"	2	"	"	014	✓	✓					✓			
"	11:30	"	4	"	"	015	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					5/12/23	1830
Date: 5/15/23	Time: 1900	Relinquished by:	Received by:	Via: courier	Date 5/16/23	Time 16:10

Remarks: Matador

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 22, 2023

Monica Peppin

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Rodney Robinson 023 H Pad OrderNo.: 2306685

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 21 sample(s) on 6/14/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BS23-01 6'
Project: Rodney Robinson 023 H Pad **Collection Date:** 6/12/2023 2:30:00 PM
Lab ID: 2306685-001 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/16/2023 2:42:42 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/16/2023 2:42:42 AM
Surr: DNOP	112	69-147		%Rec	1	6/16/2023 2:42:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/18/2023 3:45:00 AM
Surr: BFB	100	15-244		%Rec	1	6/18/2023 3:45:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/19/2023 5:24:00 PM
Toluene	ND	0.047		mg/Kg	1	6/19/2023 5:24:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/19/2023 5:24:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	6/19/2023 5:24:00 PM
Surr: 4-Bromofluorobenzene	98.1	39.1-146		%Rec	1	6/19/2023 5:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	6/20/2023 3:08:15 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-02 6'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 2:35:00 PM
Lab ID: 2306685-002 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/20/2023 6:27:32 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/20/2023 6:27:32 PM
Surr: DNOP	88.0	69-147		%Rec	1	6/20/2023 6:27:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/20/2023 6:10:00 AM
Surr: BFB	95.4	15-244		%Rec	1	6/20/2023 6:10:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 6:10:00 AM
Toluene	ND	0.049		mg/Kg	1	6/20/2023 6:10:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/20/2023 6:10:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/20/2023 6:10:00 AM
Surr: 4-Bromofluorobenzene	91.6	39.1-146		%Rec	1	6/20/2023 6:10:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	76	60		mg/Kg	20	6/20/2023 4:10:17 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BS23-03 6'
Project: Rodney Robinson 023 H Pad **Collection Date:** 6/12/2023 2:40:00 PM
Lab ID: 2306685-003 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	6/20/2023 6:38:28 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/20/2023 6:38:28 PM
Surr: DNOP	90.3	69-147		%Rec	1	6/20/2023 6:38:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/20/2023 7:15:00 AM
Surr: BFB	100	15-244		%Rec	1	6/20/2023 7:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 7:15:00 AM
Toluene	ND	0.049		mg/Kg	1	6/20/2023 7:15:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/20/2023 7:15:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/20/2023 7:15:00 AM
Surr: 4-Bromofluorobenzene	92.0	39.1-146		%Rec	1	6/20/2023 7:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	6/20/2023 4:22:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-04 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 2:45:00 PM
Lab ID: 2306685-004 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	6/20/2023 6:49:24 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/20/2023 6:49:24 PM
Surr: DNOP	90.0	69-147		%Rec	1	6/20/2023 6:49:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 10:39:00 AM
Surr: BFB	99.3	15-244		%Rec	1	6/20/2023 10:39:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 10:39:00 AM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 10:39:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 10:39:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/20/2023 10:39:00 AM
Surr: 4-Bromofluorobenzene	94.6	39.1-146		%Rec	1	6/20/2023 10:39:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	310	60		mg/Kg	20	6/20/2023 4:59:56 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-05 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 2:50:00 PM
Lab ID: 2306685-005 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/20/2023 7:00:15 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/20/2023 7:00:15 PM
Surr: DNOP	91.9	69-147		%Rec	1	6/20/2023 7:00:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 11:01:00 AM
Surr: BFB	96.2	15-244		%Rec	1	6/20/2023 11:01:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 11:01:00 AM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 11:01:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 11:01:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/20/2023 11:01:00 AM
Surr: 4-Bromofluorobenzene	93.3	39.1-146		%Rec	1	6/20/2023 11:01:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	230	61		mg/Kg	20	6/20/2023 5:12:20 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-06 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 2:55:00 PM
Lab ID: 2306685-006 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/20/2023 7:11:06 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/20/2023 7:11:06 PM
Surr: DNOP	93.2	69-147		%Rec	1	6/20/2023 7:11:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/20/2023 11:22:00 AM
Surr: BFB	103	15-244		%Rec	1	6/20/2023 11:22:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 11:22:00 AM
Toluene	ND	0.047		mg/Kg	1	6/20/2023 11:22:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/20/2023 11:22:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	6/20/2023 11:22:00 AM
Surr: 4-Bromofluorobenzene	94.8	39.1-146		%Rec	1	6/20/2023 11:22:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	260	61		mg/Kg	20	6/20/2023 5:24:45 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-07 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:00:00 PM
Lab ID: 2306685-007 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/20/2023 7:21:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/20/2023 7:21:56 PM
Surr: DNOP	94.6	69-147		%Rec	1	6/20/2023 7:21:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 11:44:00 AM
Surr: BFB	101	15-244		%Rec	1	6/20/2023 11:44:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 11:44:00 AM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 11:44:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 11:44:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/20/2023 11:44:00 AM
Surr: 4-Bromofluorobenzene	94.1	39.1-146		%Rec	1	6/20/2023 11:44:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	6/20/2023 5:37:10 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-08 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:05:00 PM
Lab ID: 2306685-008 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/20/2023 7:32:44 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/20/2023 7:32:44 PM
Surr: DNOP	88.1	69-147		%Rec	1	6/20/2023 7:32:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 12:06:00 PM
Surr: BFB	99.8	15-244		%Rec	1	6/20/2023 12:06:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 12:06:00 PM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 12:06:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 12:06:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/20/2023 12:06:00 PM
Surr: 4-Bromofluorobenzene	94.5	39.1-146		%Rec	1	6/20/2023 12:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	74	61		mg/Kg	20	6/20/2023 5:49:35 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-09 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:10:00 PM
Lab ID: 2306685-009 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/20/2023 7:43:30 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/20/2023 7:43:30 PM
Surr: DNOP	91.2	69-147		%Rec	1	6/20/2023 7:43:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/20/2023 12:28:00 PM
Surr: BFB	103	15-244		%Rec	1	6/20/2023 12:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/20/2023 12:28:00 PM
Toluene	ND	0.046		mg/Kg	1	6/20/2023 12:28:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	6/20/2023 12:28:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	6/20/2023 12:28:00 PM
Surr: 4-Bromofluorobenzene	95.0	39.1-146		%Rec	1	6/20/2023 12:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	230	60		mg/Kg	20	6/20/2023 6:01:59 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-10 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:15:00 PM
Lab ID: 2306685-010 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/20/2023 7:54:17 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/20/2023 7:54:17 PM
Surr: DNOP	88.0	69-147		%Rec	1	6/20/2023 7:54:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/20/2023 12:49:00 PM
Surr: BFB	102	15-244		%Rec	1	6/20/2023 12:49:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 12:49:00 PM
Toluene	ND	0.049		mg/Kg	1	6/20/2023 12:49:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/20/2023 12:49:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/20/2023 12:49:00 PM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	6/20/2023 12:49:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	290	59		mg/Kg	20	6/20/2023 7:18:57 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-11 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:20:00 PM
Lab ID: 2306685-011 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/20/2023 8:15:43 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/20/2023 8:15:43 PM
Surr: DNOP	93.3	69-147		%Rec	1	6/20/2023 8:15:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/20/2023 1:11:00 PM
Surr: BFB	102	15-244		%Rec	1	6/20/2023 1:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 1:11:00 PM
Toluene	ND	0.050		mg/Kg	1	6/20/2023 1:11:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/20/2023 1:11:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/20/2023 1:11:00 PM
Surr: 4-Bromofluorobenzene	96.6	39.1-146		%Rec	1	6/20/2023 1:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	170	60		mg/Kg	20	6/20/2023 7:31:18 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-12 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:25:00 PM
Lab ID: 2306685-012 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/20/2023 8:26:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/20/2023 8:26:26 PM
Surr: DNOP	89.1	69-147		%Rec	1	6/20/2023 8:26:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 1:33:00 PM
Surr: BFB	101	15-244		%Rec	1	6/20/2023 1:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 1:33:00 PM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 1:33:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 1:33:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/20/2023 1:33:00 PM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	6/20/2023 1:33:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	6/20/2023 7:43:40 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BS23-13 0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:30:00 PM
Lab ID: 2306685-013 **Matrix:** SOIL **Received Date:** 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	6/20/2023 8:37:11 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/20/2023 8:37:11 PM
Surr: DNOP	86.2	69-147		%Rec	1	6/20/2023 8:37:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 1:55:00 PM
Surr: BFB	103	15-244		%Rec	1	6/20/2023 1:55:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 1:55:00 PM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 1:55:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 1:55:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/20/2023 1:55:00 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	6/20/2023 1:55:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	6/20/2023 7:56:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-01 0-6'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:35:00 PM
Lab ID: 2306685-014 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	6/20/2023 8:47:59 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/20/2023 8:47:59 PM
Surr: DNOP	87.8	69-147		%Rec	1	6/20/2023 8:47:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/20/2023 2:39:00 PM
Surr: BFB	106	15-244		%Rec	1	6/20/2023 2:39:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/20/2023 2:39:00 PM
Toluene	ND	0.048		mg/Kg	1	6/20/2023 2:39:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/20/2023 2:39:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	6/20/2023 2:39:00 PM
Surr: 4-Bromofluorobenzene	96.3	39.1-146		%Rec	1	6/20/2023 2:39:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	200	60		mg/Kg	20	6/20/2023 8:08:21 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-02 0-6'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:40:00 PM
Lab ID: 2306685-015 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/20/2023 8:58:45 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/20/2023 8:58:45 PM
Surr: DNOP	94.7	69-147		%Rec	1	6/20/2023 8:58:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/20/2023 3:01:00 PM
Surr: BFB	110	15-244		%Rec	1	6/20/2023 3:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 3:01:00 PM
Toluene	ND	0.050		mg/Kg	1	6/20/2023 3:01:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/20/2023 3:01:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/20/2023 3:01:00 PM
Surr: 4-Bromofluorobenzene	98.9	39.1-146		%Rec	1	6/20/2023 3:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	290	60		mg/Kg	20	6/20/2023 8:20:40 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-03 0-6'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:45:00 PM
Lab ID: 2306685-016 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/20/2023 9:09:33 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/20/2023 9:09:33 PM
Surr: DNOP	90.7	69-147		%Rec	1	6/20/2023 9:09:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/20/2023 3:23:00 PM
Surr: BFB	108	15-244		%Rec	1	6/20/2023 3:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 3:23:00 PM
Toluene	ND	0.050		mg/Kg	1	6/20/2023 3:23:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/20/2023 3:23:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/20/2023 3:23:00 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	6/20/2023 3:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	160	60		mg/Kg	20	6/20/2023 8:33:01 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-04 0.5-6'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:50:00 PM
Lab ID: 2306685-017 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	6/20/2023 9:20:18 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	6/20/2023 9:20:18 PM
Surr: DNOP	90.6	69-147		%Rec	1	6/20/2023 9:20:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/20/2023 3:45:00 PM
Surr: BFB	109	15-244		%Rec	1	6/20/2023 3:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/20/2023 3:45:00 PM
Toluene	ND	0.047		mg/Kg	1	6/20/2023 3:45:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/20/2023 3:45:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	6/20/2023 3:45:00 PM
Surr: 4-Bromofluorobenzene	97.1	39.1-146		%Rec	1	6/20/2023 3:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	320	61		mg/Kg	20	6/20/2023 8:45:23 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-05 0-0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 3:55:00 PM
Lab ID: 2306685-018 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/20/2023 9:31:01 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/20/2023 9:31:01 PM
Surr: DNOP	90.2	69-147		%Rec	1	6/20/2023 9:31:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/20/2023 4:07:00 PM
Surr: BFB	107	15-244		%Rec	1	6/20/2023 4:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 4:07:00 PM
Toluene	ND	0.050		mg/Kg	1	6/20/2023 4:07:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/20/2023 4:07:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/20/2023 4:07:00 PM
Surr: 4-Bromofluorobenzene	99.0	39.1-146		%Rec	1	6/20/2023 4:07:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	6/20/2023 8:57:44 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-06 0-0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 4:00:00 PM
Lab ID: 2306685-019 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/20/2023 9:41:49 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/20/2023 9:41:49 PM
Surr: DNOP	89.0	69-147		%Rec	1	6/20/2023 9:41:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/20/2023 4:29:00 PM
Surr: BFB	104	15-244		%Rec	1	6/20/2023 4:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/20/2023 4:29:00 PM
Toluene	ND	0.047		mg/Kg	1	6/20/2023 4:29:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/20/2023 4:29:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	6/20/2023 4:29:00 PM
Surr: 4-Bromofluorobenzene	99.8	39.1-146		%Rec	1	6/20/2023 4:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	73	60		mg/Kg	20	6/20/2023 9:34:47 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-07 0-0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 4:05:00 PM
Lab ID: 2306685-020 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	6/20/2023 9:52:40 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/20/2023 9:52:40 PM
Surr: DNOP	91.2	69-147		%Rec	1	6/20/2023 9:52:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/20/2023 4:51:00 PM
Surr: BFB	104	15-244		%Rec	1	6/20/2023 4:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 4:51:00 PM
Toluene	ND	0.049		mg/Kg	1	6/20/2023 4:51:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/20/2023 4:51:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/20/2023 4:51:00 PM
Surr: 4-Bromofluorobenzene	98.0	39.1-146		%Rec	1	6/20/2023 4:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	93	60		mg/Kg	20	6/20/2023 9:47:06 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306685**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: WS23-08 0-0.5'
Project: Rodney Robinson 023 H Pad
Collection Date: 6/12/2023 4:10:00 PM
Lab ID: 2306685-021 **Matrix:** SOIL
Received Date: 6/14/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/20/2023 10:03:37 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/20/2023 10:03:37 PM
Surr: DNOP	93.7	69-147		%Rec	1	6/20/2023 10:03:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/20/2023 5:13:00 PM
Surr: BFB	104	15-244		%Rec	1	6/20/2023 5:13:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/20/2023 5:13:00 PM
Toluene	ND	0.050		mg/Kg	1	6/20/2023 5:13:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/20/2023 5:13:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/20/2023 5:13:00 PM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	6/20/2023 5:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	81	60		mg/Kg	20	6/20/2023 9:59:26 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **MB-75725**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75725**	RunNo: **97599**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548769**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75725**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75725**	RunNo: **97599**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548770**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

Sample ID: **MB-75715**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75715**	RunNo: **97603**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548909**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75715**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75715**	RunNo: **97603**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548910**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **LCS-75592**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75592**	RunNo: **97480**
Prep Date: **6/14/2023**	Analysis Date: **6/15/2023**	SeqNo: **3541824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	36	10	50.00	0	72.7	61.9	130			
Surr: DNOP	4.7		5.000		93.7	69	147			

Sample ID: **MB-75592**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75592**	RunNo: **97480**
Prep Date: **6/14/2023**	Analysis Date: **6/15/2023**	SeqNo: **3541827** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		96.5	69	147			

Sample ID: **LCS-75600**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75600**	RunNo: **97480**
Prep Date: **6/14/2023**	Analysis Date: **6/15/2023**	SeqNo: **3542195** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		83.4	69	147			

Sample ID: **MB-75600**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75600**	RunNo: **97480**
Prep Date: **6/14/2023**	Analysis Date: **6/15/2023**	SeqNo: **3542197** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.1		10.00		80.6	69	147			

Sample ID: **LCS-75609**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75609**	RunNo: **97521**
Prep Date: **6/15/2023**	Analysis Date: **6/16/2023**	SeqNo: **3546967** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		100	69	147			

Sample ID: **LCS-75623**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75623**	RunNo: **97521**
Prep Date: **6/15/2023**	Analysis Date: **6/16/2023**	SeqNo: **3546969** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.9		5.000		97.8	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **LCS-75644**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75644**	RunNo: **97521**
Prep Date: **6/15/2023**	Analysis Date: **6/16/2023**	SeqNo: **3546970** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.8		5.000		96.0	69	147			

Sample ID: **MB-75609**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75609**	RunNo: **97521**
Prep Date: **6/15/2023**	Analysis Date: **6/16/2023**	SeqNo: **3546972** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		112	69	147			

Sample ID: **MB-75623**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75623**	RunNo: **97521**
Prep Date: **6/15/2023**	Analysis Date: **6/16/2023**	SeqNo: **3546974** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.9		10.00		99.3	69	147			

Sample ID: **MB-75644**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75644**	RunNo: **97521**
Prep Date: **6/15/2023**	Analysis Date: **6/16/2023**	SeqNo: **3546975** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		93.3	69	147			

Sample ID: **2306685-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS23-02 6'**	Batch ID: **75729**	RunNo: **97595**
Prep Date: **6/20/2023**	Analysis Date: **6/21/2023**	SeqNo: **3548206** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	32	9.4	46.82	0	69.0	54.2	135			
Surr: DNOP	4.1		4.682		87.7	69	147			

Sample ID: **2306685-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS23-02 6'**	Batch ID: **75729**	RunNo: **97595**
Prep Date: **6/20/2023**	Analysis Date: **6/21/2023**	SeqNo: **3548207** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	30	8.5	42.66	0	69.4	54.2	135	8.70	29.2	
Surr: DNOP	3.8		4.266		89.0	69	147	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**
22-Jun-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **LCS-75726**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **75726**	RunNo: **97595**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548226**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.8	69	147			

Sample ID: **LCS-75729**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **75729**	RunNo: **97595**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548227**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	10	50.00	0	76.1	61.9	130			
Surr: DNOP	4.5		5.000		89.9	69	147			

Sample ID: **MB-75726**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **75726**	RunNo: **97595**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548230**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		86.2	69	147			

Sample ID: **MB-75729**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **75729**	RunNo: **97595**							
Prep Date: **6/20/2023**	Analysis Date: **6/20/2023**	SeqNo: **3548231**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.3		10.00		83.2	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **lcs-75583**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75583**	RunNo: **97501**
Prep Date: **6/14/2023**	Analysis Date: **6/16/2023**	SeqNo: **3543011** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.6	70	130			
Surr: BFB	2200		1000		216	15	244			

Sample ID: **mb-75583**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75583**	RunNo: **97501**
Prep Date: **6/14/2023**	Analysis Date: **6/16/2023**	SeqNo: **3543012** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.9	15	244			

Sample ID: **lcs-75597**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75597**	RunNo: **97537**
Prep Date: **6/14/2023**	Analysis Date: **6/18/2023**	SeqNo: **3544808** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2100		1000		215	15	244			

Sample ID: **mb-75597**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75597**	RunNo: **97537**
Prep Date: **6/14/2023**	Analysis Date: **6/18/2023**	SeqNo: **3544809** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		103	15	244			

Sample ID: **lcs-75614**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75614**	RunNo: **97537**
Prep Date: **6/15/2023**	Analysis Date: **6/18/2023**	SeqNo: **3545009** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		217	15	244			

Sample ID: **mb-75614**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75614**	RunNo: **97537**
Prep Date: **6/15/2023**	Analysis Date: **6/18/2023**	SeqNo: **3545010** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		109	15	244			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**
22-Jun-23

Client: Vertex Resources Services, Inc.
Project: Rodney Robinson 023 H Pad

Sample ID: **lcs-75597**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75597**	RunNo: **97558**
Prep Date: **6/14/2023**	Analysis Date: **6/19/2023**	SeqNo: **3545956** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		222	15	244			

Sample ID: **mb-75597**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75597**	RunNo: **97558**
Prep Date: **6/14/2023**	Analysis Date: **6/19/2023**	SeqNo: **3545957** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		99.9	15	244			

Sample ID: **lcs-75642**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75642**	RunNo: **97558**
Prep Date: **6/15/2023**	Analysis Date: **6/20/2023**	SeqNo: **3545981** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.7	70	130			
Surr: BFB	2200		1000		216	15	244			

Sample ID: **mb-75642**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75642**	RunNo: **97558**
Prep Date: **6/15/2023**	Analysis Date: **6/20/2023**	SeqNo: **3545982** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.1	15	244			

Sample ID: **2306685-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS23-02 6'**	Batch ID: **75642**	RunNo: **97558**
Prep Date: **6/15/2023**	Analysis Date: **6/20/2023**	SeqNo: **3545984** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.49	0	90.0	70	130			
Surr: BFB	2100		979.4		215	15	244			

Sample ID: **2306685-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BS23-02 6'**	Batch ID: **75642**	RunNo: **97558**
Prep Date: **6/15/2023**	Analysis Date: **6/20/2023**	SeqNo: **3545985** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.44	0	91.4	70	130	1.35	20	
Surr: BFB	2000		977.5		209	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **lcs-75583**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **75583**	RunNo: **97501**							
Prep Date: **6/14/2023**	Analysis Date: **6/16/2023**	SeqNo: **3543043**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	98.0	70	130			
Toluene	0.98	0.050	1.000	0	98.2	70	130			
Ethylbenzene	0.98	0.050	1.000	0	97.8	70	130			
Xylenes, Total	2.9	0.10	3.000	0	97.7	70	130			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.5	39.1	146			

Sample ID: **mb-75583**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **75583**	RunNo: **97501**							
Prep Date: **6/14/2023**	Analysis Date: **6/16/2023**	SeqNo: **3543044**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		93.3	39.1	146			

Sample ID: **lcs-75597**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **75597**	RunNo: **97537**							
Prep Date: **6/14/2023**	Analysis Date: **6/18/2023**	SeqNo: **3544873**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		94.7	39.1	146			

Sample ID: **mb-75597**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **75597**	RunNo: **97537**							
Prep Date: **6/14/2023**	Analysis Date: **6/18/2023**	SeqNo: **3544874**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.92		1.000		92.3	39.1	146			

Sample ID: **lcs-75614**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **75614**	RunNo: **97537**							
Prep Date: **6/15/2023**	Analysis Date: **6/18/2023**	SeqNo: **3545011**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		103	39.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **mb-75614**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75614**	RunNo: **97537**
Prep Date: **6/15/2023**	Analysis Date: **6/18/2023**	SeqNo: **3545012** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		100	39.1	146			

Sample ID: **lcs-75597**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75597**	RunNo: **97558**
Prep Date: **6/14/2023**	Analysis Date: **6/19/2023**	SeqNo: **3546026** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.7	39.1	146			

Sample ID: **mb-75597**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75597**	RunNo: **97558**
Prep Date: **6/14/2023**	Analysis Date: **6/19/2023**	SeqNo: **3546027** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	39.1	146			

Sample ID: **lcs-75642**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75642**	RunNo: **97558**
Prep Date: **6/15/2023**	Analysis Date: **6/20/2023**	SeqNo: **3546040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.9	70	130			
Toluene	0.95	0.050	1.000	0	94.7	70	130			
Ethylbenzene	0.93	0.050	1.000	0	93.3	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.7	70	130			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.2	39.1	146			

Sample ID: **mb-75642**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75642**	RunNo: **97558**
Prep Date: **6/15/2023**	Analysis Date: **6/20/2023**	SeqNo: **3546041** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.4	39.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306685**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rodney Robinson 023 H Pad

Sample ID: **2306685-003AMS** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BS23-03 6'** Batch ID: **75642** RunNo: **97558**

Prep Date: **6/15/2023** Analysis Date: **6/20/2023** SeqNo: **3546044** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	0.9833	0	93.8	70	130			
Toluene	0.93	0.049	0.9833	0	94.6	70	130			
Ethylbenzene	0.92	0.049	0.9833	0	93.6	70	130			
Xylenes, Total	2.8	0.098	2.950	0	94.1	70	130			
Surr: 4-Bromofluorobenzene	0.94		0.9833		95.1	39.1	146			

Sample ID: **2306685-003AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BS23-03 6'** Batch ID: **75642** RunNo: **97558**

Prep Date: **6/15/2023** Analysis Date: **6/20/2023** SeqNo: **3546045** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	0.9891	0	92.7	70	130	0.614	20	
Toluene	0.92	0.049	0.9891	0	93.1	70	130	1.03	20	
Ethylbenzene	0.92	0.049	0.9891	0	92.7	70	130	0.393	20	
Xylenes, Total	2.8	0.099	2.967	0	92.7	70	130	0.913	20	
Surr: 4-Bromofluorobenzene	0.94		0.9891		94.6	39.1	146	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2306685

RcptNo: 1

Received By: Juan Rojas 6/14/2023 7:30:00 AM

Completed By: Tracy Casarrubias 6/14/2023 8:11:45 AM

Reviewed By: JR 6/14/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SCM 06/14/23

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions: Mailing address,phone number and Email are missing on COC- TMC 6/14/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes	Morty		

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush 5 Day

Project Name: Rodney Robinson #023H Pad

Project #:

Project Manager: Monica Peppin

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Mo+y

Cooler Temp(including CF): 2.0-0=2.0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2306685	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/12	2:30	Soil	BS23-01 6'	4 oz	Ice	001										
	2:35		-02 6'			002										
	2:40		-03 6'			003										
	2:45		-04 0.5'			004										
	2:50		-05 0.5'			005										
	2:55		-06 0.5'			006										
	3:00		-07 0.5'			007										
	3:05		-08 0.5'			008										
	3:10		-09 0.5'			009										
	3:15		-10 0.5'			010										
	3:20		-11 0.5'			011										
	3:25		-12 0.5'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/13/23	1030
6/13/23	1900				Date	Time

Remarks: Matador

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

Chain-of-Custody Record

Client: Vertex

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 5 Day

Project Name: Rodney Robinson #023H Pad

Project #:

Project Manager: Monica Peppin

Sampler: MJP

On Ice: ☐ Yes ☐ No

# of Coolers: 1 Monty

Cooler Temp(Including CF): 2.0-0=2.0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 23066685
6/12	3:30	Soil	BS23-13 0.5	4oz	Ice	013
	3:35		WS23-01 0-6'			014
	3:40		-02 0-6'			015
	3:45		-03 0-6'			016
	3:50		-04 0.5-6'			017
	3:55		-05 0-0.5			018
	4:00		-06 0-0.5			019
	4:05		-07 0-0.5			020
	4:10		-08 0-0.5			021

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/13/23	1030
6/13/23	1700			Courier	6/14/23	7:30

Remarks: Matador

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

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

CONDITIONS

Action 242203

CONDITIONS

Operator: MATADOR PRODUCTION COMPANY One Lincoln Centre Dallas, TX 75240	OGRID: 228937
	Action Number: 242203
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	10/13/2023