Incident Number: nAB1515240134

Release Assessment and Closure

Dickens 29 Federal #003H

Section 29, Township 16 South, Range 28 East

API: 30-015-37220

County: Eddy

Vertex File Number: 23E-04710

Prepared for:
Mack Energy Corporation

Prepared by:
Vertex Resource Services Inc.

Date:
June 2024

Release Assessment and Closure
Dickens 29 Federal #003H
Section 29, Township 16 South, Range 28 East
API: 30-015-37220
County: Eddy

Prepared for:
Mack Energy Corporation
11344 Lovington Highway
Artesia, New Mexico 88220

New Mexico Oil Conservation Division – District 2
508 West Texas Avenue
Artesia, New Mexico 88210

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

John Rewis

John Rewis, B.Sc.
ENVIRONMENTAL TECHNICIAN, REPORTING

June 14, 2024
Date

Sally Carttar

Sally Carttar, B.A.
PROJECT MANAGER, REPORT REVIEW

June 14, 2024
Date

Table of Contents

In-text Tables

List of Figures

List of Tables

List of Appendices

1.0 Introduction

Mack Energy Corporation (Mack) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a produced water release that occurred on February 18, 2015, at Dickens 29 Federal #003H API 30-015-37220 (hereafter referred to as the "site"). Devon Energy Production Company, LP, who owned the lease at the time of the incident, submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 2 on May 13, 2015. Incident ID number nAB1515240134, 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 February 18, 2015, due to a driver loading off of the produced water tank and not realizing the back valve of the trailer was left open. The incident was reported on May 13, 2015, and involved the release of approximately 5 barrels (bbl.) of produced water on the pad site. Approximately 4 bbl. of free fluid was removed during the initial clean-up. Additional details relevant to the release are presented in the C-141 Report.

3.0 Site Characteristics

The site is located approximately 18 miles west of Artesia, New Mexico (Google Inc., 2024). The legal location for the site is Section 29, Township 16 South and Range 28 East in Eddy County, New Mexico. The release area is located on federal property. An aerial photograph and site schematic are presented on Figure 1.

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 and storage. The following sections specifically describe the release area or in proximity to the constructed pad (Figure 1).

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2024) indicates the site's surface geology primarily comprises Qoa – older alluvial deposits of upland plains and piedmont areas (middle to lower Pleistocene). The soil at the site is characterized as Simona gravelly fine sandy loam (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Additional soil characteristics include a drainage class of well drained to moderately well drained with a runoff class of moderately slow to moderate. The karst geology potential for the site is low to medium (United States Department of the Interior, Bureau of Land Management, 2018).

The surrounding landscape is associated with plains and alluvial fans with elevations ranging between 2,842 and 4,500 feet. The climate is semiarid with average annual precipitation ranging between 8 and 13 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be grasses and shrubs. Black grama (*Bouteloua eriopoda*) dominate the historical plant community (United States Department of

Agriculture, Natural Resources Conservation Service, 2024). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

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 2.4 miles southwest of the site (United States Geological Survey, 2024). Data from 2024 show the NMOSE borehole recorded a depth to groundwater of 55 feet below ground surface (bgs). No exploratory well was elected to be drilled within 0.5 miles of the site. Strictest criteria, under 50 feet to groundwater, was applied as the closure criteria pertaining to the site. 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 a riverine located approximately 3,622 feet southeast of the site (United States Fish and Wildlife Service, 2024).

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 Determination			
Site Name: Dickens 29 Federal #003H			
Spill Coordinates: 32.8940582,-104.1905899		**X: 575702.99**	**Y: 3639832.72**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	55	feet
	Distance between release and nearest DTGW reference	**2.40**	miles
	Date of nearest DTGW reference measurement	**September 13, 2016**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	3,622	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	9,578	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	24,266	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**	12,488	feet
	ii) Within 1000 feet of any fresh water well or spring	4,363	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	1,267	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	**104,762**	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest high- or critical-karst zone	659	feet
10	Within a 100-year Floodplain	>100	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**6,373**	feet
11	Soil Type	Simona gravelly fine sandy loam	
12	Ecological Classification	Shallow sandy, loamy	
13	Geology	Qoa	
	NMAC 19.15.29.12 E (Table 1) 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 October 26, 2023, which identified the area of the release specified in the initial C-141 Report. Delineation was performed between January 6 and 22, 2024. The total affected area was determined to be approximately 4,147 square feet. The Daily Field Reports (DFRs) associated with the site inspection and delineation sampling are included in Appendix C. Characterization screening and laboratory results are presented in Table 3.

Remediation efforts began on April 2, 2024, and were finalized on April 19, 2024. Vertex personnel supervised the excavation of impacted soils. Field screening was completed on a total of 35 sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and silver nitrate titration (chlorides). Field screening results were used to identify areas requiring further remediation. Soils were removed to a depth of 1 to 3.5 feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility. 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 at least 48 hours before each sampling event and are 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 42 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Eurofins or Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, 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). Confirmatory sampling 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 by May 14, 2024. 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, Mack Energy Corporation requests that this release be closed.

Should you have any questions or concerns, please do not hesitate to contact Sally Carttar at 575.361.3561 or scarttar@vertexresource.com

7.0 References

Google Inc. (2024). *Google Earth Pro (Version 7.3.3)* [Software]. Retrieved from https://earth.google.com

New Mexico Bureau of Geology and Mineral Resources. (2024). *Interactive Geologic Map*. Retrieved from https://maps.nmt.edu/

New Mexico Department of Surface Water Quality Bureau. (2024). *Assessed and Impaired Waters of New Mexico*. Retrieved from https://gis.web.env.nm.gov/oem/?map=swqb

New Mexico Energy, Minerals and Natural Resources Department. (2024). *OCD Permitting - Spill Search*. Retrieved from https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/Data/Spills/Spills.aspx

New Mexico Mining and Minerals Division. (2024). *Coal Mine Resources in New Mexico*. Retrieved from https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=5f80f3b0faa545e58fe747cc7b037a93

New Mexico Office of the State Engineer. (2024a). *Point of Diversion Location Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html

New Mexico Office of the State Engineer. (2024b). *Water Column/Average Depth to Water Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

New Mexico Office of the State Engineer. (2024c). *Well Log/Meter Information Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.html

New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service. (2024). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

United States Department of Homeland Security, Federal Emergency Management Agency. (2024). *FEMA Flood Map Service: Search by Address*. Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karst*. Retrieved from https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html

United States Fish and Wildlife Service. (2024). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

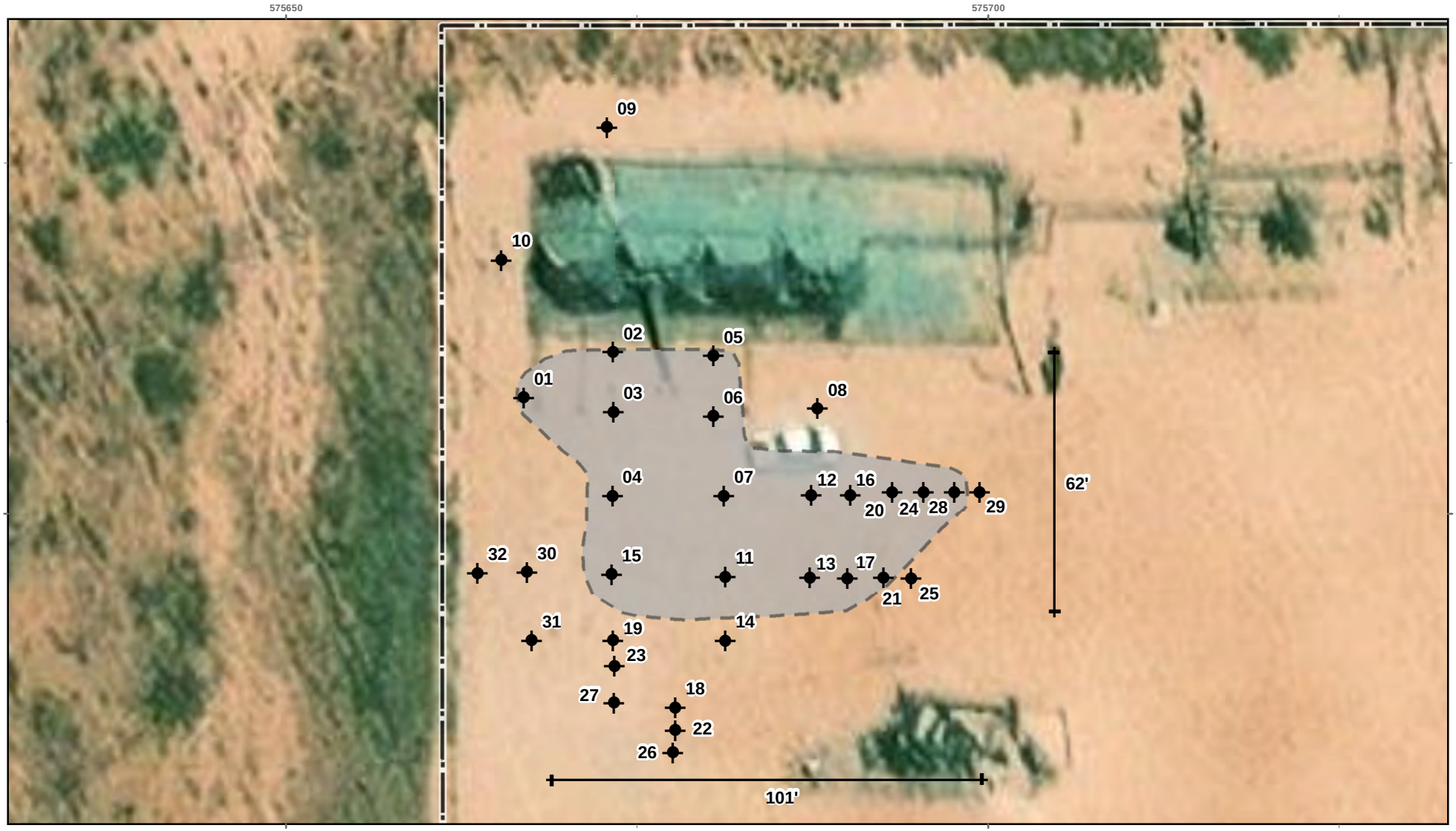
United States Geological Survey. (2024). *National Water Information System: Web Interface*. Retrieved from https://waterdata.usgs.gov/nwis

8.0 Limitations

This report has been prepared for the sole benefit of Mack Energy Corporation. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division and the Bureau of Land Management, without the express written consent of Vertex Resource Services Inc. (Vertex) and Mack Energy Corporation. 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 "BH24-") | Approximate Lease Boundary | Area of Impact (~ 4,147 sq. ft.)

VERTEX

0 10 20 40 ft

NAD 1983 UTM Zone 13N
Date: Apr 23/24

N

Characterization Sampling Site Schematic
Dickens 29 Federal #003H

FIGURE: 1

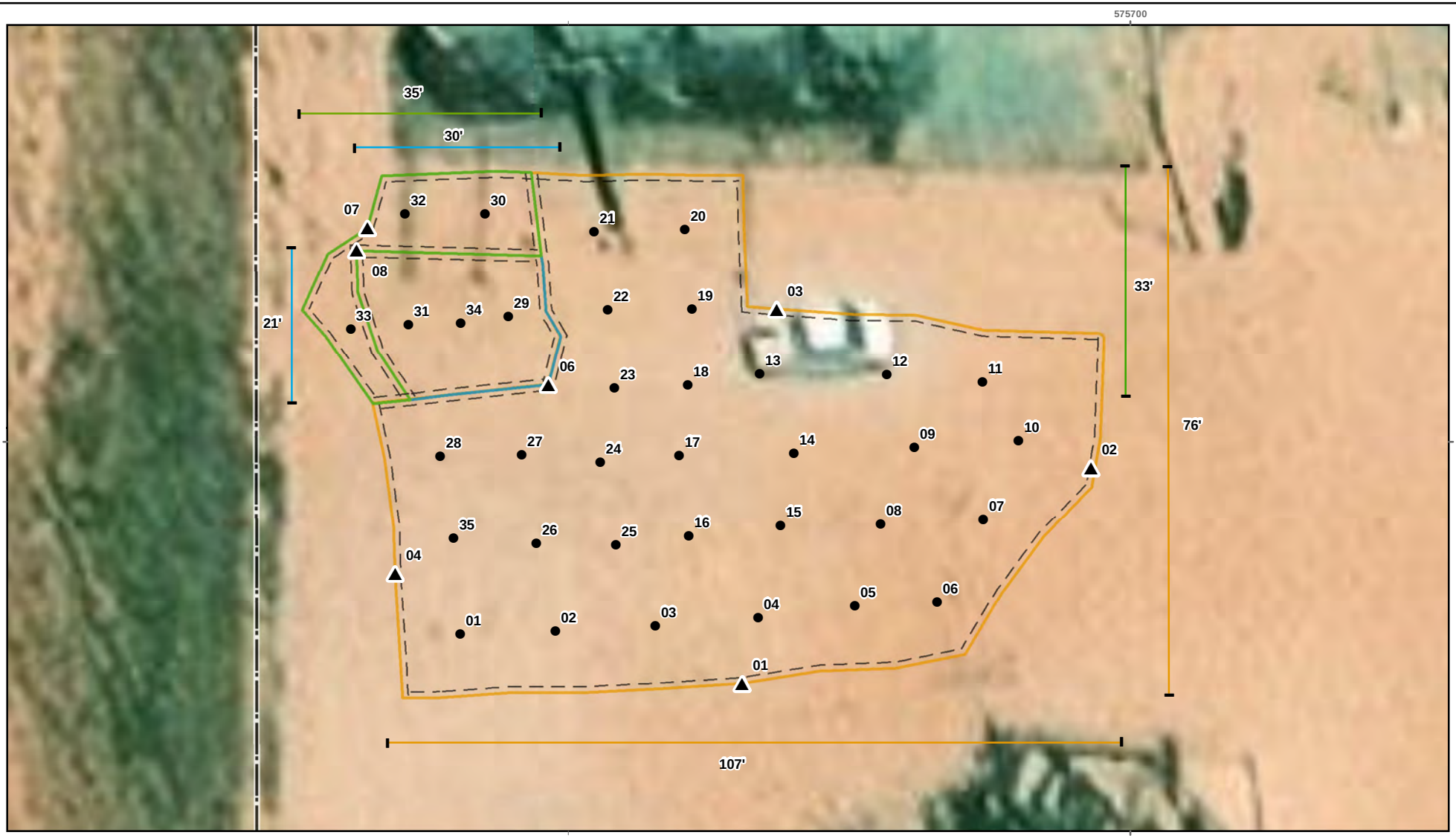
MACK Energy Corporation

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, 2023. Boreholes and approximate release area from GPS by Vertex Professional Services Ltd. (Vertex), 2024. Approximate lease boundary from imagery by Vertex, 2024.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects_US PROJECTS\Mack Energy\23E-04710\Figure 3 Characterization Sampling Site Schematic (23E-04710) ID18242.mxd



● Base Sample (Prefixed by "BS24-")

▲ Wall Sample (Prefixed by "WS24-")

Approximate Lease Boundary

Excavation to 1' bgs (~5,499 sq.ft.)

Excavation to 2.5' bgs (~430 sq.ft.)

Excavation to 3.5' bgs (~526 sq.ft.)

VERTEX

0 5 10 20 ft

NAD 1983 UTM Zone 13N
Date: May 09/24

N

Confirmation Sampling Site Schematic
Dickens 29 Federal #003H

FIGURE:
2

MACK Energy Corporation

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, 2023. Samples and excavations from GPS by Vertex Professional Services Ltd. (Vertex), 2024. Approximate lease boundary from imagery by Vertex, 2024.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Mack Energy\23E-04710\Figure 4 Confirmatory Sampling Site Schematic (23E-04710) ID18241.mxd

TABLES

Client Name: Mack Energy Corporation
Site Name: Dickens 29 Federal #003H
NMOCD Tracking #: nAB1515240134
Project #: 23E- 04710
Lab Reports: 2401309, 2401883, and 2401926

Table 3. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-01	0	January 6, 2024	0	4	530	ND	ND	ND	ND	ND	ND	ND	290
	1	January 6, 2024	0	21	560	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	24	555	ND	ND	ND	ND	ND	ND	ND	**610**
BH24-02	0	January 6, 2024	0	45	3663	ND	ND	ND	ND	ND	ND	ND	**4100**
	1	January 6, 2024	0	15	405	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	13	98	ND	ND	ND	ND	ND	ND	ND	85
BH24-03	0	January 6, 2024	0	37	5,763	ND	ND	ND	ND	ND	ND	ND	**6500**
	1	January 6, 2024	0	41	3,352	-	-	-	-	-	-	-	-
	2	January 6, 2024	0	45	1,788	ND	ND	ND	ND	ND	ND	ND	**2000**
	3	January 6, 2024	0	31	360	-	-	-	-	-	-	-	-
	4	January 6, 2024	0	22	590	ND	ND	ND	ND	ND	ND	ND	360
BH24-04	0	January 6, 2024	0	22	590	ND	ND	ND	ND	ND	ND	ND	**920**
	1	January 6, 2024	0	26	590	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	14	443	ND	ND	ND	ND	ND	ND	ND	500
BH24-05	0	January 6, 2024	0	515	410	ND	ND	ND	50	93	50	**143**	370
	1	January 6, 2024	0	24	205	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	2	158	ND	ND	ND	ND	ND	ND	ND	ND
BH24-06	0	January 6, 2024	0	208	1,370	ND	ND	ND	ND	ND	ND	ND	**1500**
	1	January 6, 2024	0	12	185	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	8	85	ND	ND	ND	ND	ND	ND	ND	ND
BH24-07	0	January 6, 2024	0	812	615	ND	ND	ND	530	550	**530**	**1080**	**700**
	1	January 6, 2024	0	25	470	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	9	165	ND	ND	ND	ND	ND	ND	ND	120
BH24-08	0	January 6, 2024	0	5	190	ND	ND	ND	ND	ND	ND	ND	130
	1	January 6, 2024	0	8	215	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	2	123	ND	ND	ND	ND	ND	ND	ND	ND
BH24-09	0	January 6, 2024	0	4	163	ND	ND	ND	ND	ND	ND	ND	ND
	1	January 6, 2024	0	2	115	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	9	275	ND	ND	ND	ND	ND	ND	ND	160
BH24-10	0	January 6, 2024	0	9	115	ND	ND	ND	ND	ND	ND	ND	ND
	1	January 6, 2024	0	0	128	-	-	-	-	-	-	-	-
	2	January 7, 2024	0	3	130	ND	0.11	ND	ND	ND	ND	ND	ND
BH24-11	0	January 7, 2024	0	1,124	410	ND	ND	ND	2200	2200	**2200**	**4400**	350
	2	January 7, 2024	0	15	945	ND	ND	ND	ND	ND	ND	ND	**890**
	4	January 22, 2024	0	60	422	ND	ND	ND	ND	ND	ND	ND	210
BH24-12	0	January 17, 2024	0	-	667	ND	ND	ND	15	ND	15	15	**760**
	2	January 17, 2024	0	-	975	ND	ND	ND	ND	ND	ND	ND	**650**
BH24-13	0	January 17, 2024	0	-	932	ND	ND	ND	12	ND	12	12	**750**
	2	January 17, 2024	0	-	277	ND	ND	ND	ND	ND	ND	ND	89
BH24-14	0	January 17, 2024	0	-	700	ND	ND	ND	ND	ND	ND	ND	380
	2	January 17, 2024	0	-	535	ND	ND	ND	ND	ND	ND	ND	210
BH24-15	0	January 17, 2024	0	-	1,707	ND	ND	ND	34	100	34	**134**	**1200**
	2	January 17, 2024	0	-	667	ND	ND	ND	ND	ND	ND	ND	270
BH24-16	0	January 18, 2024	0	-	2,125	ND	ND	ND	ND	ND	ND	ND	**1500**
	2	January 18, 2024	0	-	620	ND	ND	ND	ND	ND	ND	ND	80
BH24-17	0	January 18, 2024	0	-	1,322	ND	ND	ND	ND	ND	ND	ND	**950**
	2	January 18, 2024	0	-	475	ND	ND	ND	ND	ND	ND	ND	150
BH24-18	0	January 18, 2024	0	-	367	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 18, 2024	0	-	399	ND	ND	ND	ND	ND	ND	ND	ND
BH24-19	0	January 18, 2024	0	-	725	ND	ND	ND	ND	ND	ND	ND	240
	2	January 18, 2024	0	-	787	ND	ND	ND	ND	ND	ND	ND	280
	4	January 22, 2024	0	21	340	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Mack Energy Corporation
Site Name: Dickens 29 Federal #003H
NMOCD Tracking #: nAB1515240134
Project #: 23E- 04710
Lab Reports: 2401309, 2401883, and 2401926

Table 3. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-20	0	January 18, 2024	0	-	2,638	ND	ND	ND	ND	ND	ND	ND	**1800**
	2	January 18, 2024	0	-	622	ND	ND	ND	ND	ND	ND	ND	120
BH24-21	0	January 18, 2024	0	-	3,545	ND	ND	ND	ND	ND	ND	ND	**2800**
	2	January 18, 2024	0	-	352	ND	ND	ND	ND	ND	ND	ND	ND
BH24-22	0	January 18, 2024	0	-	387	ND	ND	ND	ND	ND	ND	ND	71
	2	January 18, 2024	0	-	385	ND	ND	ND	ND	ND	ND	ND	76
BH24-23	0	January 18, 2024	0	-	395	ND	ND	ND	ND	ND	ND	ND	63
	2	January 18, 2024	0	-	845	ND	ND	ND	ND	ND	ND	ND	310
	4	January 22, 2024	0	10	382	ND	ND	ND	ND	ND	ND	ND	ND
BH24-24	0	January 19, 2024	0	-	1,595	ND	ND	ND	ND	ND	ND	ND	**850**
	2	January 19, 2024	0	-	1,290	ND	ND	ND	ND	ND	ND	ND	240
	4	January 22, 2024	0	10	310	ND	ND	ND	ND	ND	ND	ND	73
BH24-25	0	January 19, 2024	0	19	308	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 19, 2024	0	20	507	ND	ND	ND	ND	ND	ND	ND	ND
BH24-26	0	January 19, 2024	0	70	450	-	-	-	-	-	-	-	-
	2	January 19, 2024	0	25	575	-	-	-	-	-	-	-	-
BH24-27	0	January 19, 2024	0	12	407	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 19, 2024	0	18	475	ND	ND	ND	ND	ND	ND	ND	99
BH24-28	0	January 19, 2024	0	-	6,757	ND	ND	ND	ND	ND	ND	ND	**5100**
	2	January 19, 2024	0	-	722	ND	ND	ND	ND	ND	ND	ND	300
	4	January 22, 2024	0	35	382	ND	ND	ND	ND	ND	ND	ND	ND
BH24-29	0	January 19, 2024	0	17	417	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 19, 2024	0	0	427	ND	ND	ND	ND	ND	ND	ND	ND
BH24-30	0	January 19, 2024	0	0	470	ND	ND	ND	ND	ND	ND	ND	120
	2	January 19, 2024	0	-	837	ND	ND	ND	ND	ND	ND	ND	590
	4	January 22, 2024	0	25	500	ND	ND	ND	ND	ND	ND	ND	110
BH24-31	0	January 22, 2024	0	19	340	ND	ND	ND	ND	ND	ND	ND	110
	2	January 22, 2024	0	42	505	ND	ND	ND	ND	ND	ND	ND	220
BH24-32	0	January 22, 2024	0	26	445	ND	ND	ND	ND	ND	ND	ND	ND
	2	January 22, 2024	0	36	580	ND	ND	ND	ND	ND	ND	ND	400

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Remediation Closure Criteria

Client Name: Mack Energy Corporation
Site Name: Dickens 29 Federal #003H
NMOCD Tracking #: nAB1515240134
Project #: 23E- 04710
Lab Reports: 885-2428-1, 885-3166-1, 885-3292-1

Table 4. Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
WS24-01	0-1	April 2, 2024	0	49	573	ND	ND	ND	ND	ND	ND	ND	250
WS24-02	0-1	April 2, 2024	0	207	595	ND	ND	ND	49	ND	49	49	320
WS24-03	0-1	April 2, 2024	0	123	568	ND	ND	ND	15	ND	15	15	110
WS24-04	0-1	April 18, 2024	0	24	585	ND	ND	ND	ND	ND	ND	ND	160
WS24-06	1-3.5	April 18, 2024	0	38	400	ND	ND	ND	ND	ND	ND	ND	100
WS24-07	0-2.5	April 18, 2024	0	39	340	ND	ND	ND	ND	ND	ND	ND	130
WS24-08	2.5-3.5	April 18, 2024	0	22	403	ND	ND	ND	ND	ND	ND	ND	87
BS24-01	1	April 19, 2024	0	36	293	ND	ND	ND	ND	ND	ND	ND	210
BS24-02	1	April 2, 2024	0	14	518	ND	ND	ND	ND	ND	ND	ND	190
BS24-03	1	April 19, 2024	0	46	240	ND	ND	ND	ND	ND	ND	ND	480
BS24-04	1	April 19, 2024	0	20	260	ND	ND	ND	ND	ND	ND	ND	70
BS24-05	1	April 19, 2024	0	18	200	ND	ND	ND	ND	ND	ND	ND	17
BS24-06	1	April 2, 2024	0	10	540	ND	ND	ND	ND	ND	ND	ND	270
BS24-07	1	April 2, 2024	0	9	573	ND	ND	ND	ND	ND	ND	ND	220
BS24-08	1	April 2, 2024	0	7	533	ND	ND	ND	ND	ND	ND	ND	240
BS24-09	1	April 3, 2024	0	20	545	ND	ND	ND	ND	ND	ND	ND	150
BS24-10	1	April 3, 2024	0	-	705	ND	ND	ND	ND	ND	ND	ND	340
BS24-11	1	April 3, 2024	0	24	595	ND	ND	ND	ND	ND	ND	ND	240
BS24-12	1	April 3, 2024	0	30	533	ND	ND	ND	ND	ND	ND	ND	150
BS24-13	1	April 3, 2024	0	27	570	ND	ND	ND	ND	ND	ND	ND	250
BS24-14	1	April 3, 2024	0	-	700	ND	ND	ND	ND	ND	ND	ND	360
BS24-15	1	April 3, 2024	0	-	875	ND	ND	ND	ND	ND	ND	ND	500
BS24-16	1	April 19, 2024	0	17	233	ND	ND	ND	ND	ND	ND	ND	24
BS24-17	1	April 18, 2024	0	49	515	ND	ND	ND	ND	ND	ND	ND	210
BS24-18	1	April 19, 2024	0	30	308	ND	ND	ND	ND	ND	ND	ND	7
BS24-19	1	April 3, 2024	0	-	853	ND	ND	ND	ND	ND	ND	ND	460
BS24-20	1	April 3, 2024	0	14	553	ND	ND	ND	ND	ND	ND	ND	470
BS24-21	1	April 18, 2024	0	36	453	ND	ND	ND	ND	ND	ND	ND	100
BS24-22	1	April 18, 2024	0	20	322	ND	ND	ND	ND	ND	ND	ND	ND
BS24-23	1	April 18, 2024	0	21	370	ND	ND	ND	ND	ND	ND	ND	100
BS24-24	1	April 19, 2024	0	42	380	ND	ND	ND	ND	ND	ND	ND	310
BS24-25	1	April 3, 2024	0	-	740	ND	ND	ND	ND	ND	ND	ND	150
BS24-26	1	April 19, 2024	0	37	220	ND	ND	ND	ND	ND	ND	ND	180
BS24-27	1	April 19, 2024	0	6	360	ND	ND	ND	ND	ND	ND	ND	160
BS24-28	1	April 18, 2024	0	34	445	ND	ND	ND	ND	ND	ND	ND	90
BS24-29	3.5	April 18, 2024	0	28	348	ND	ND	ND	ND	ND	ND	ND	80
BS24-30	2.5	April 18, 2024	0	38	598	ND	ND	ND	ND	ND	ND	ND	270
BS24-31	3.5	April 18, 2024	0	37	310	ND	ND	ND	ND	ND	ND	ND	110
BS24-32	2.5	April 18, 2024	0	40	373	ND	ND	ND	ND	ND	ND	ND	130
BS24-33	2.5	April 18, 2024	0	24	363	ND	ND	ND	ND	ND	ND	ND	110
BS24-34	3.5	April 18, 2024	0	51	435	ND	ND	ND	ND	ND	ND	ND	160
BS24-35	1	April 19, 2024	0	31	195	ND	ND	ND	ND	ND	ND	ND	70

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Remediation Closure Criteria

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	nAB1515240134
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Mack Energy Corporation	OGRID 13837
Contact Name Matt Buckles	Contact Telephone 575-748-1288
Contact email mattbuckles@mec.com	Incident # *(assigned by OCD)* nAB1515240134
Contact mailing address 1344 Lovington Hwy, Artesia, NM 88210	

Location of Release Source

Latitude 32.89405 Longitude 104.19059
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Dickens 29 Fed 3H	Site Type Oil
Date Release Discovered	API# *(if applicable)* 30-015-37220

Unit Letter	Section	Township	Range	County
H	29	16S	28E	Eddy

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) 5	Volume Recovered (bbls) 4
	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: Driver was loading off of the produced water tank and did not realize the back valve on the trailer was opened. The hauler shut off the pump and the open valve and called a supervisor.

State of New Mexico
Oil Conservation Division

Incident ID	nAB1515240134
District RP	
Facility ID	
Application ID	

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

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Notice was given to the OCD and the BLM by Mike McMahan (Devon) on February 18, 2015 at 6:10pm.

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:
The release occurred outside of containment.

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

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

Printed Name: _____ Title: _____

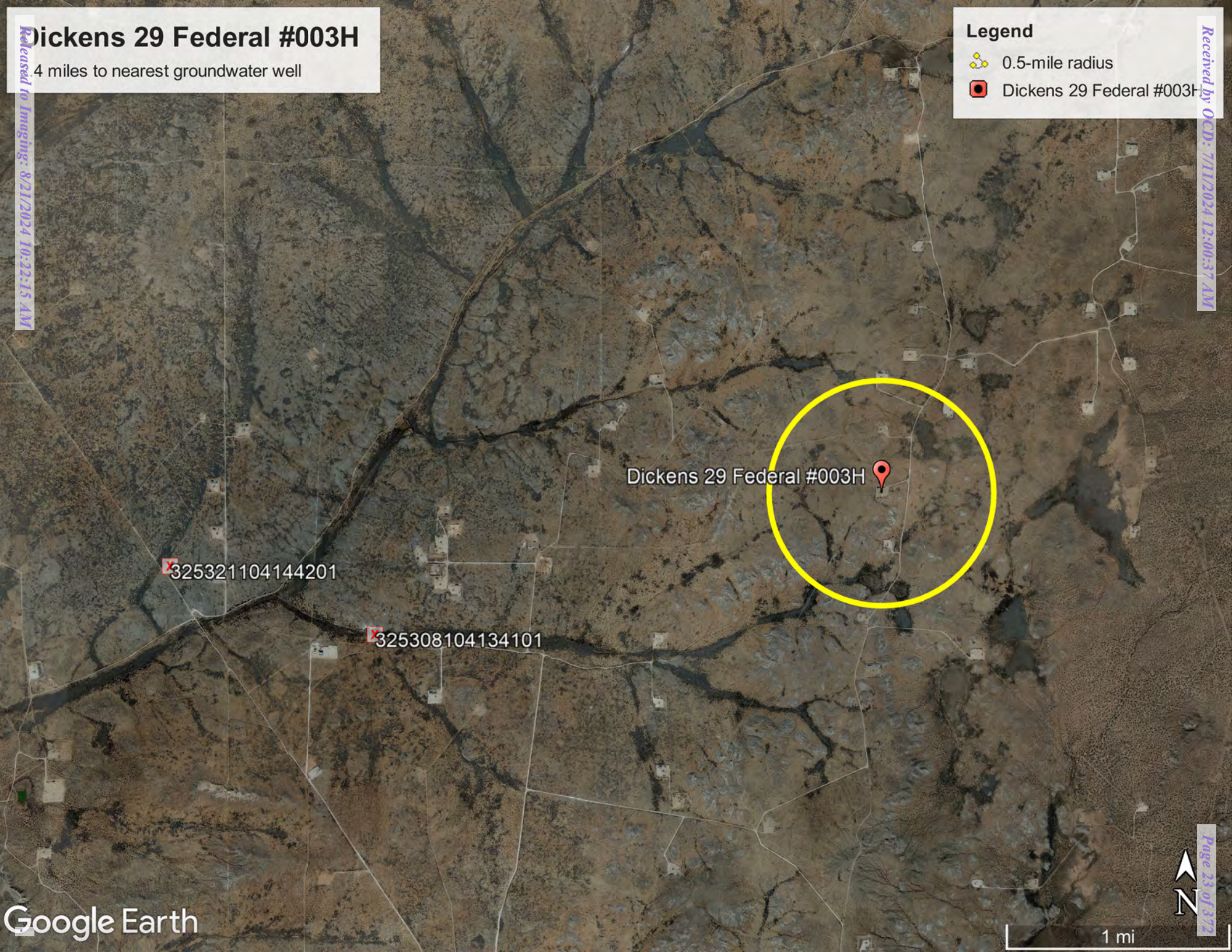
Signature: _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

APPENDIX B – Closure Criteria Research Documentation



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

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

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

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

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
RA 12455 POD1		RA	ED	2	1	2	36	16S	27E	571998	3638766	3855	200	55	145

Average Depth to Water: **55 feet**
Minimum Depth: **55 feet**
Maximum Depth: **55 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 575703 **Northing (Y):** 3639833 **Radius:** 5000

10/24/23 7:38 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	RA 12455 POD1	2	1	2	36	16S	27E	571998	3638766

Driller License:	1058	**Driller Company:**	KEY'S DRILLING & PUMP SERVICE		
Driller Name:	KUEHN III, DONALD				
Drill Start Date:	09/12/2016	**Drill Finish Date:**	09/13/2016	**Plug Date:**	
Log File Date:	09/29/2016	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	17 GPM
Casing Size:	4.50	**Depth Well:**	200 feet	**Depth Water:**	55 feet

Water Bearing Stratifications:	Top	Bottom	Description
	55	65	Sandstone/Gravel/Conglomerate
	80	90	Other/Unknown
	160	200	Other/Unknown

Casing Perforations:	Top	Bottom
	160	200

U.S. Fish and Wildlife Service
National Wetlands Inventory

Dickens Watercourse 3,622 ft

October 24, 2023

Wetlands

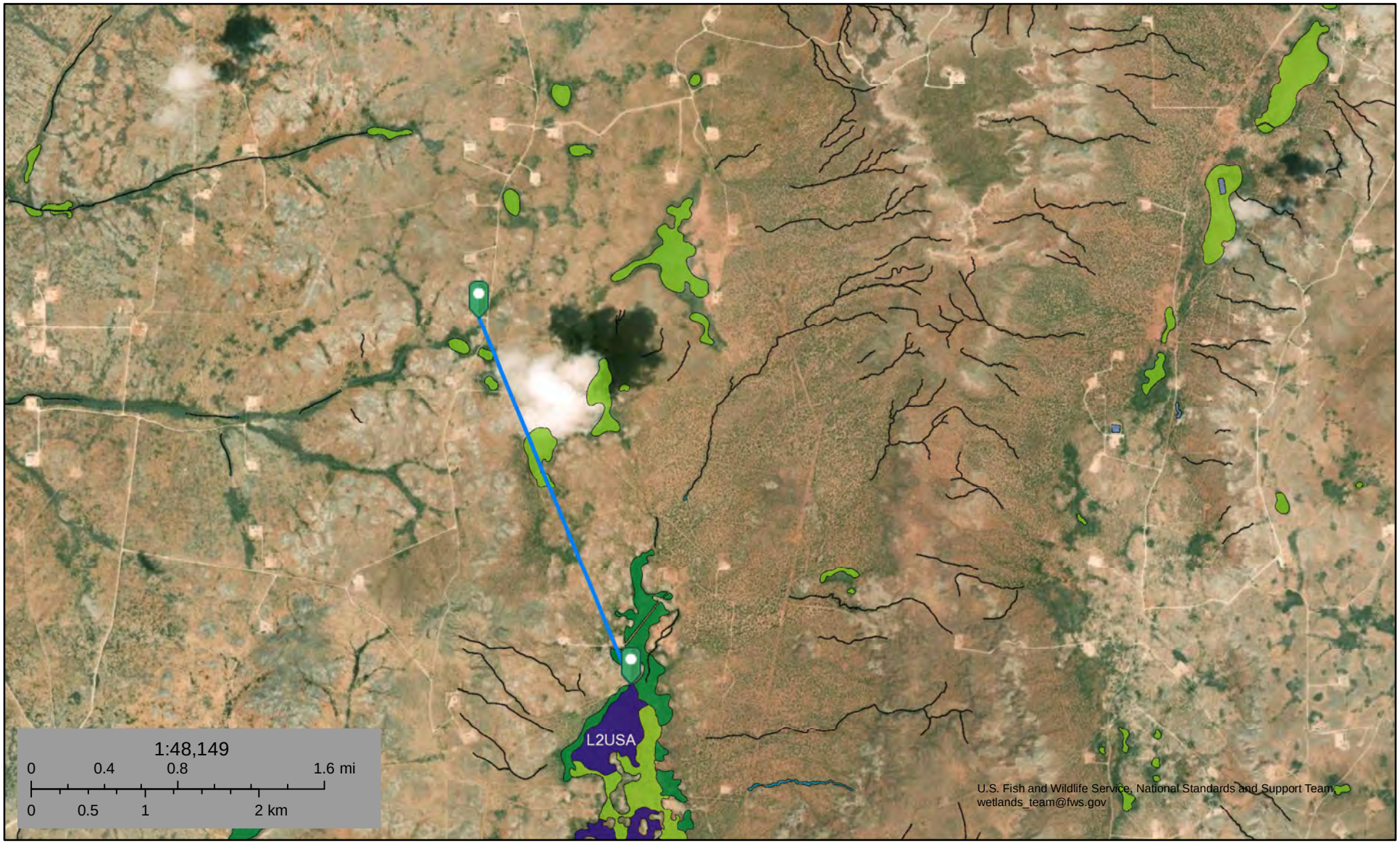
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Dickens Lakebed 9,578 ft



October 24, 2023

Wetlands

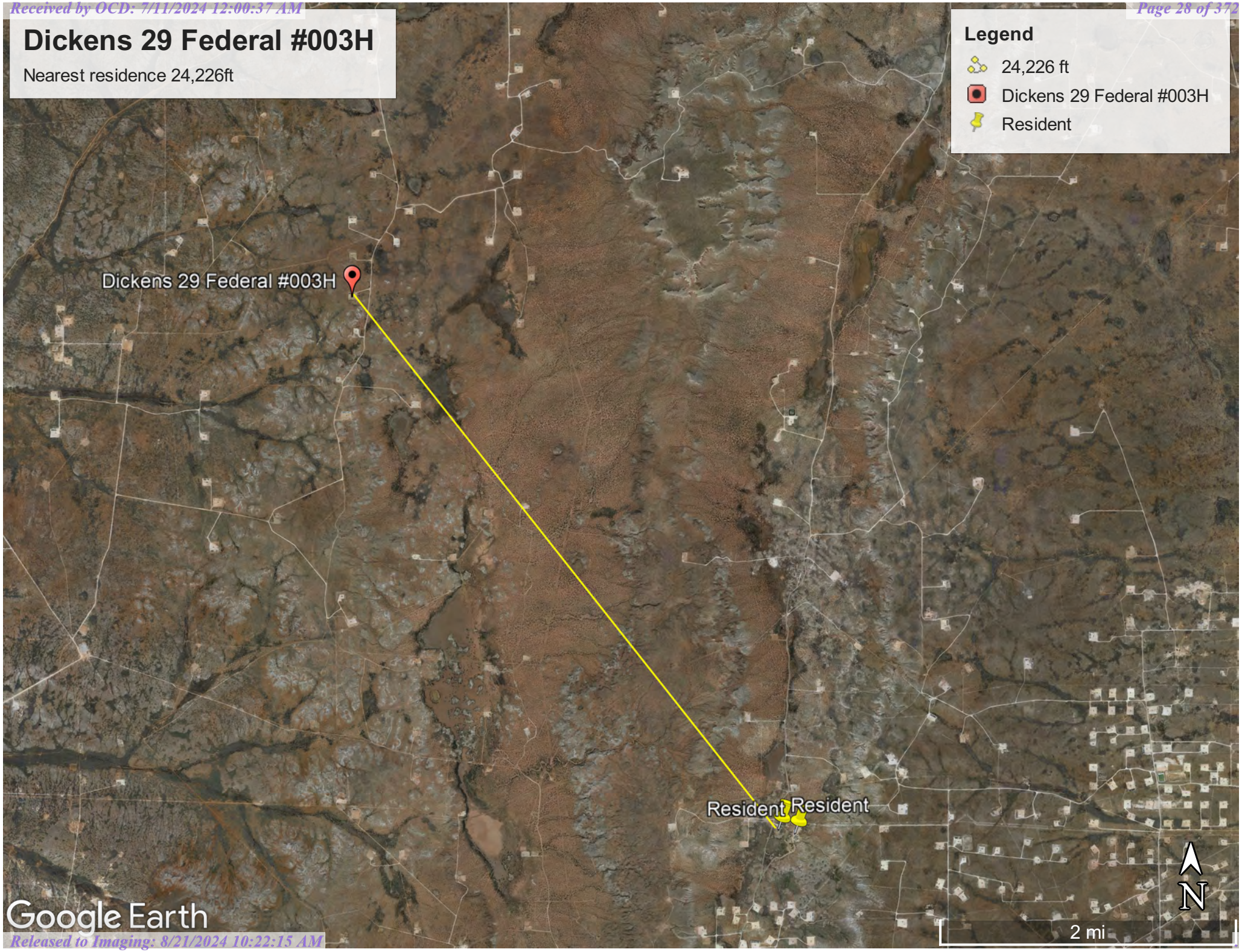
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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

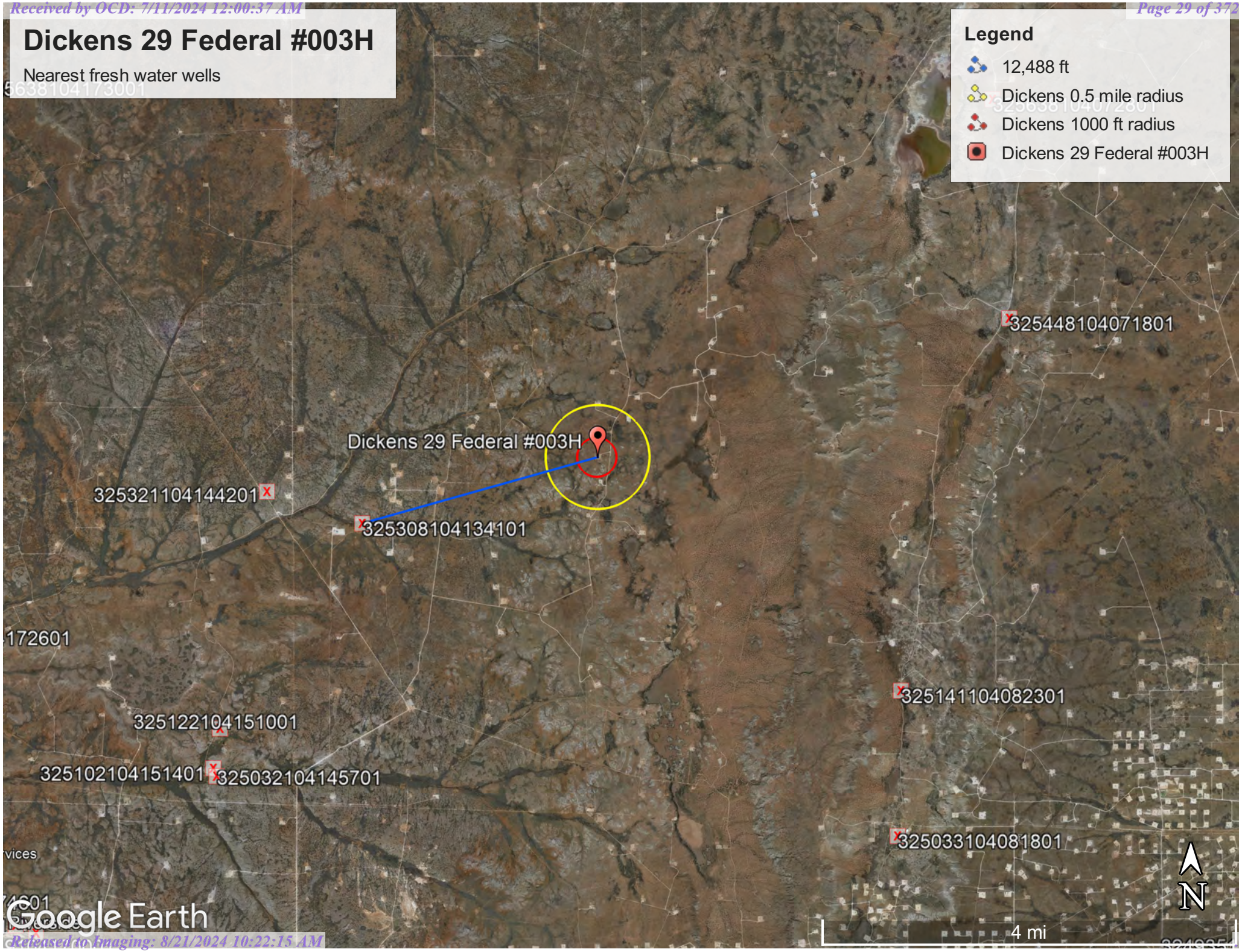
Dickens 29 Federal #003H

Nearest residence 24,226ft



Dickens 29 Federal #003H

Nearest fresh water wells



U.S. Fish and Wildlife Service
National Wetlands Inventory

Dickens Wetland 1,267 ft

October 24, 2023

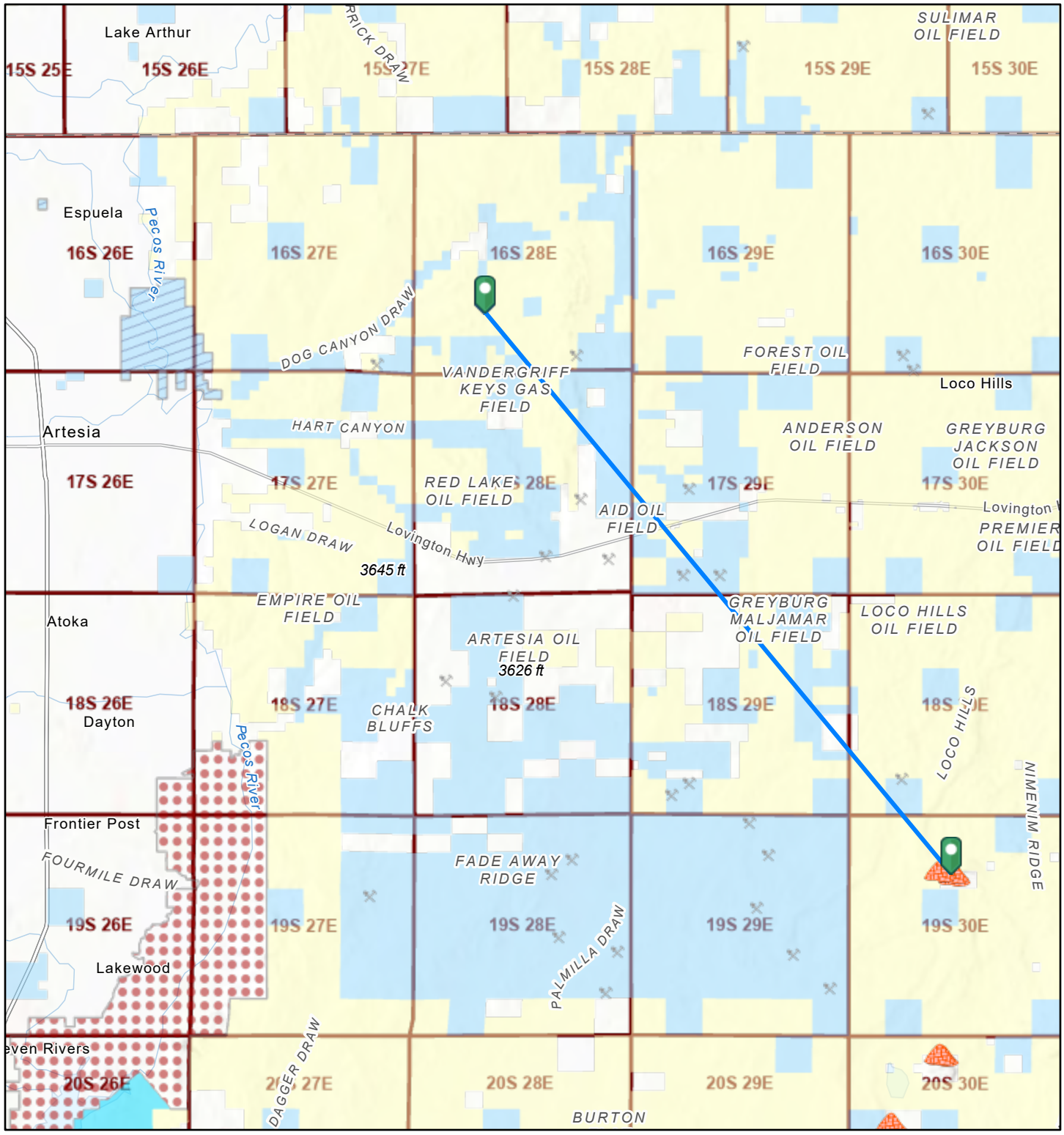
Wetlands

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

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

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

Dickens 29 Federal #003H Mine 104,762 ft.



12/15/2023, 3:57:09 PM

1:288,895

0 2 4 8 mi

0 3.25 6.5 13 km

Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Potash

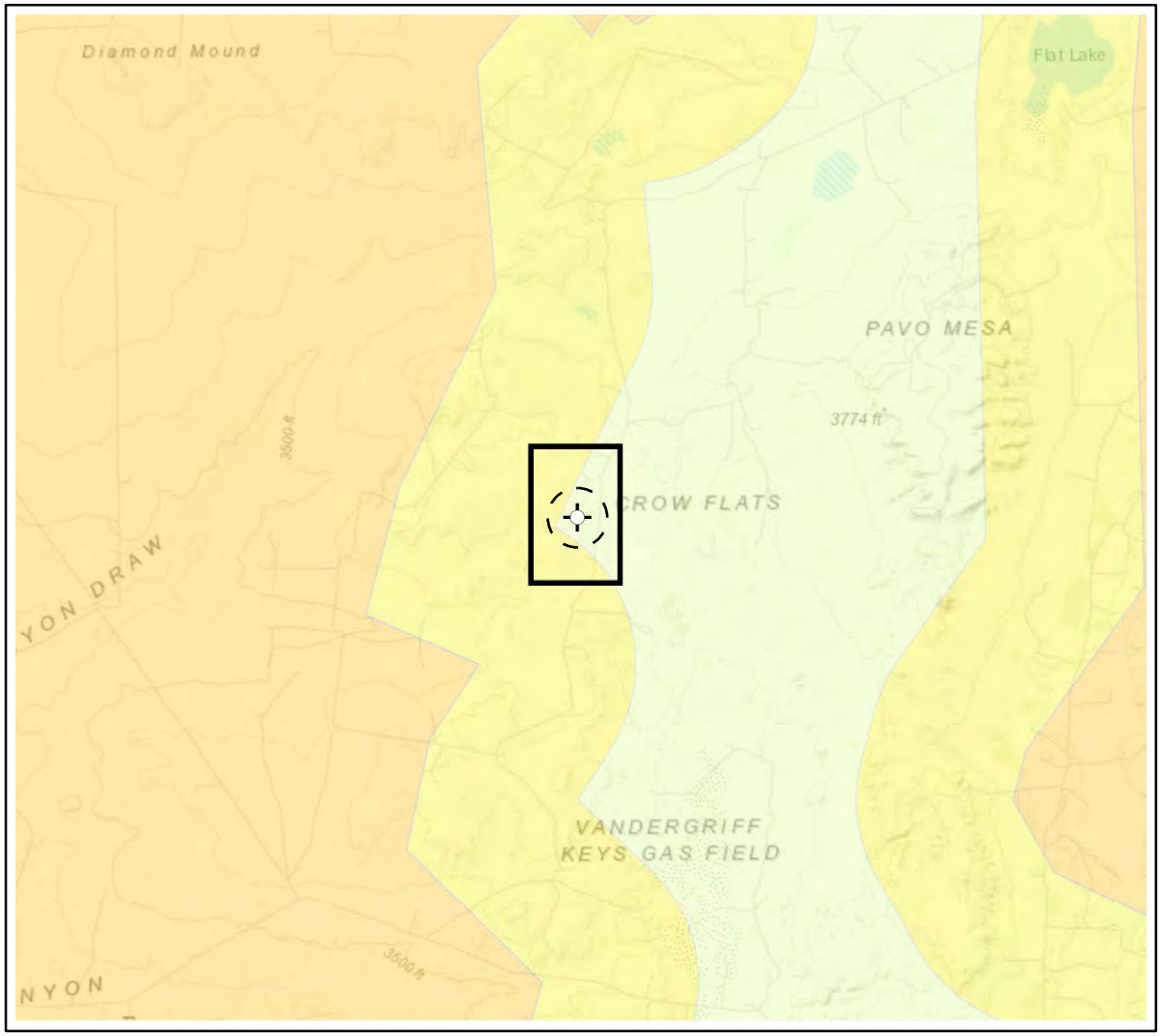
Land Ownership

- BLM
- BOR
- P
- S
- SGF
- SP
- PLSS Townships

U.S. BLM, Esri, NASA, NGA, USGS, New Mexico State University, Texas Parks & Wildlife, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, BLM

EMNRD MMD GIS Coordinator

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



Karst Potential

- Critical
- High
- Medium
- Low

Site Location

Buffer Location (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft

VERTEX

Map Center:
32.8941, -104.1906

NAD 1983 UTM Zone 13N
Date: Nov 21/23.

N

Karst Potential
Dickens 29 Federal #003H

Figure:
X

MACK Energy Corporation

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inacuracies. 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 sources from Roswell Field Office, Bureau of Land Mangement, 2020 or United States Department of the Interior, Bereau of Land Management, (2018). Karst Potential.

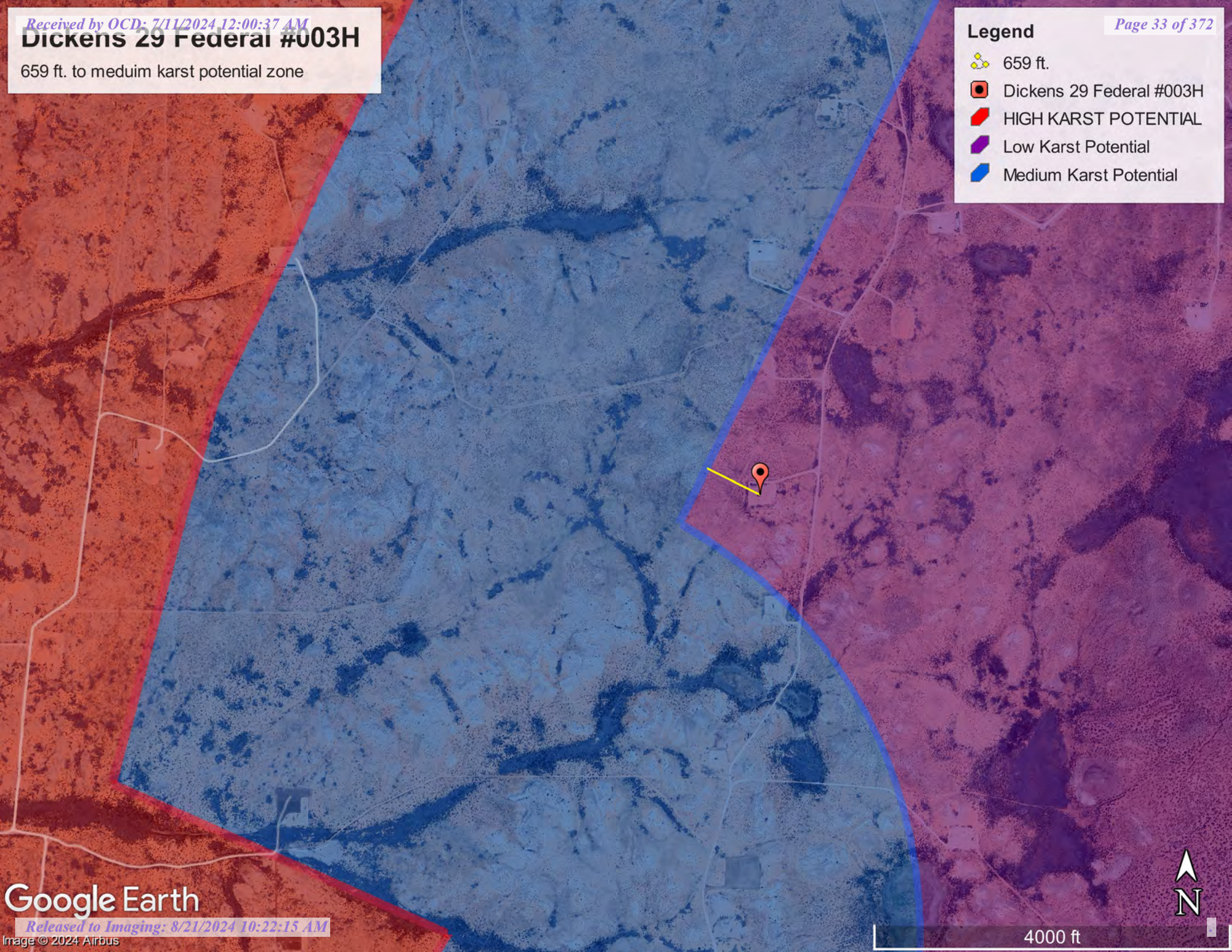
Document Path: D:\Vertex\GeoRequests\23E-04710 ID17431\Figure X KarstPotential 23E-04710 ID17431.mxd

Dickens 29 Federal #003H

659 ft. to meduim karst potential zone

Legend

- 659 ft.
- Dickens 29 Federal #003H
- HIGH KARST POTENTIAL
- Low Karst Potential
- Medium Karst Potential



National Flood Hazard Layer FIRMette

FEMA

104°11'45"W 32°53'54"N

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

1:6,000

104°11'7"W 32°53'24"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

OTHER FEATURES
- 20.2 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.

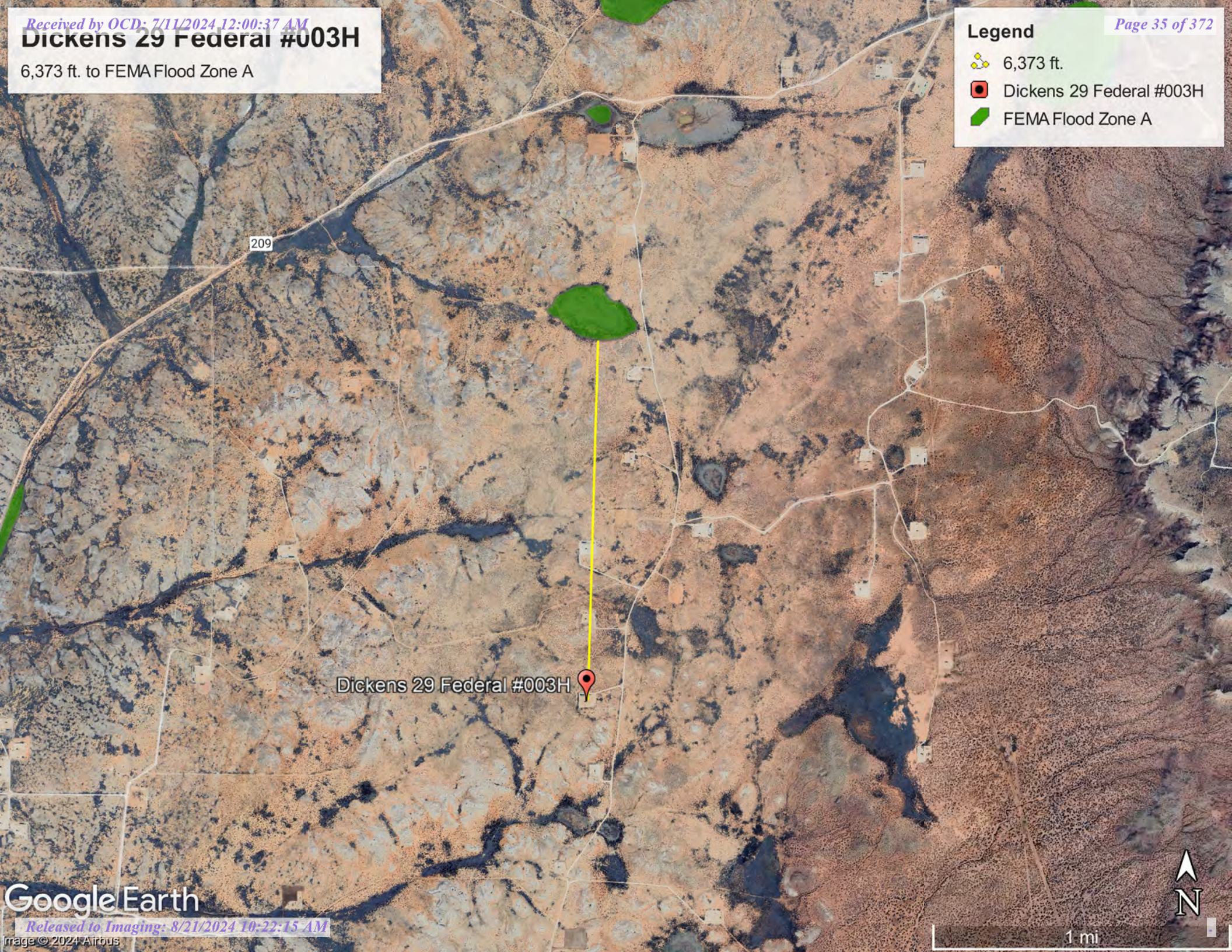
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/23/2023 at 9:09 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.

Dickens 29 Federal #003H

6,373 ft. to FEMA Flood Zone A



United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Eddy Area, New Mexico

October 23, 2023

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

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

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

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

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

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (Dickens 29 Federal #003H)

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 19, Sep 7, 2023

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

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

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 (Dickens 29 Federal #003H)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LN	Largo-Stony land complex, 0 to 25 percent slopes	0.6	24.9%
SG	Simona gravelly fine sandy loam, 0 to 3 percent slopes	1.9	75.1%
Totals for Area of Interest		**2.5**	**100.0%**

Map Unit Descriptions (Dickens 29 Federal #003H)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

LN—Largo-Stony land complex, 0 to 25 percent slopes

Map Unit Setting

National map unit symbol: 1w50
Elevation: 2,000 to 5,700 feet
Mean annual precipitation: 6 to 14 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Largo and similar soils: 41 percent
Stony land: 40 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Largo

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Talf, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Calcareous alluvium

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 47 inches: silt loam
H3 - 47 to 65 inches: loam

Properties and qualities

Slope: 1 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 (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R070BC007NM - Loamy
Hydric soil rating: No

Minor Components

Simona
Percent of map unit: 7 percent
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Largo
Percent of map unit: 6 percent
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: No

Pajarito
Percent of map unit: 6 percent
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

SG—Simona gravelly fine sandy loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 1w5w
Elevation: 2,750 to 5,000 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition
Simona and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting
Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile
H1 - 0 to 19 inches: gravelly fine sandy loam
H2 - 19 to 23 inches: indurated

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 4 percent
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Playa

Percent of map unit: 1 percent
Landform: Playas
Landform position (three-dimensional): Talf
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

USDA Natural Resources Conservation Service

Ecological site R070BC007NM
Loamy

Accessed: 10/24/2023

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

Table 2. Representative physiographic features

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

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity short duration thunderstorms.

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

The average frost-free season is 207 to 220 days. The last killing frost is in late March or early April, and the first killing frost is in late October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest in January through June rapidly drying out the soil during a critical time for cool season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

This site is not influenced by wetland or streams.

Soil features

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

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

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

Characteristic Soils:

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

Table 4. Representative soil features

Surface texture	(1) Loam (2) Very fine sandy loam (3) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to slow
Soil depth	30–72 in

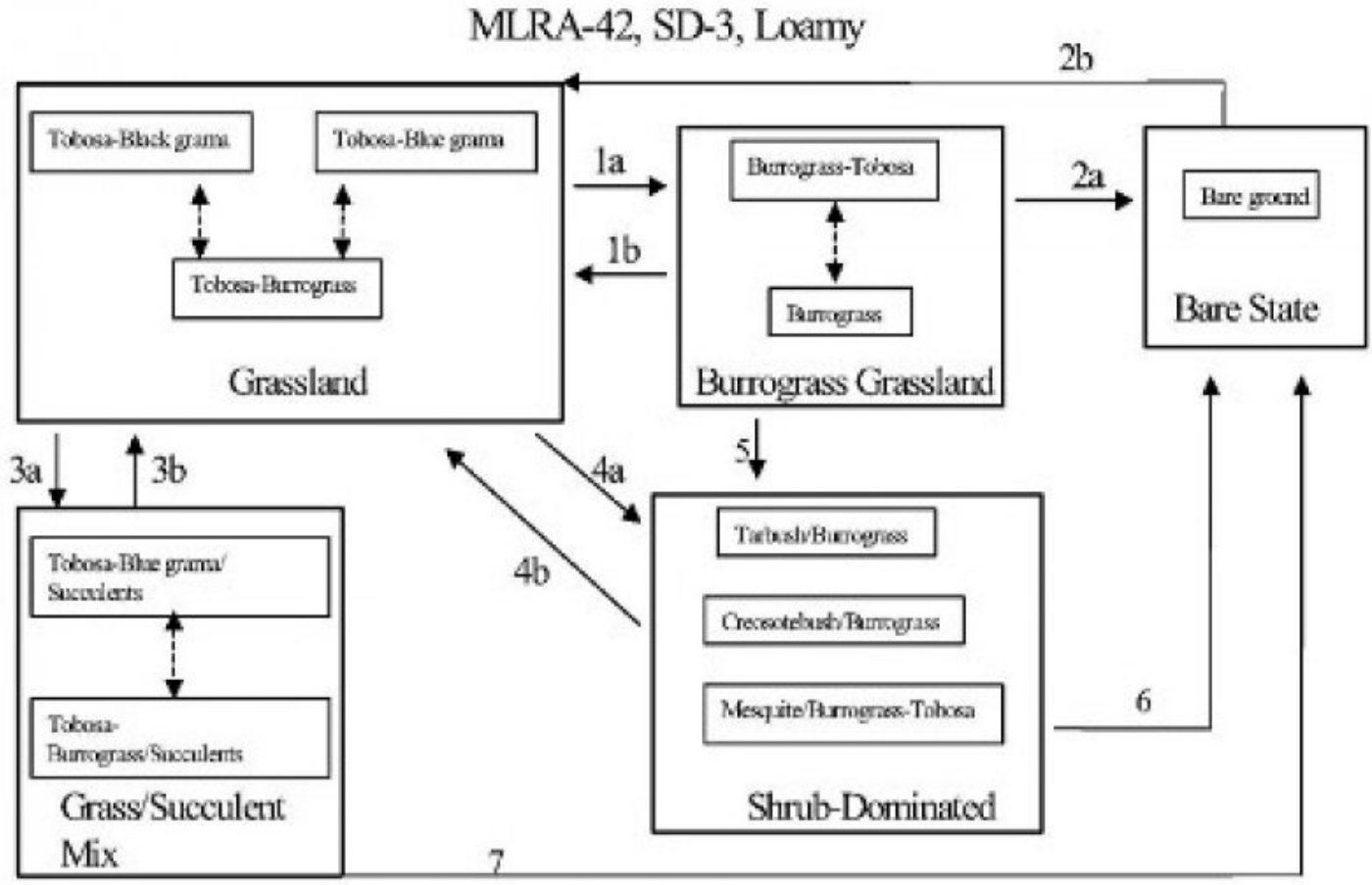
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–12 in
Calcium carbonate equivalent (0-40in)	0–10%
Electrical conductivity (0-40in)	0–8 mmhos/cm
Sodium adsorption ratio (0-40in)	0–6
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–5%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

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

State and transition model

Plant Communities and Transitional Pathways (diagram)



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

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

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

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

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

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

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

State Containing Historic Climax Plant Community Grassland: The historic plant community has a grassland aspect, dominated by grasses with shrubs and half-shrubs sparse and evenly distributed. Black grama, blue grama, and tobosa are the dominant grass species. There are a variety of perennial forbs and their production varies widely by season and year. Globemallow, verbena, groundsels, croton and filaree are forbs commonly found on this site. Fourwing saltbush and winterfat are two of the more palatable shrubs. The Loamy ecological site encompasses a

wide variety of soils, with surface textures ranging from sandy loams to clay loams. Soil depths range from shallow to very deep and can include sub surface features such as calcic, petrocalcic, and gypsic horizons. These variations cause differences in plant community composition and dynamics. Black grama is found at highest densities on coarser textured sandy loams, with blue grama preferring finer textured loam and silt loam, and tobosa favoring lower landscape positions and loam to clay loam surface textures. Burrograss may often be the dominant grass species on silty soils, perhaps in part due to the seedlings ability to auger into and establish on physically crusted soils. Gypsum influenced soils typically have greater amounts of tobosa, burrograss, and ephedra. There is greater representation of sideoats and vine mesquite within the tobosa-blue grama community. Retrogression under continuous heavy grazing results in a decrease of black grama, blue grama, sideoats grama, plains bristlegrass, bush muhly, cane bluestem, vine mesquite, winterfat, and fourwing saltbush. Species such as burrograss, threeawns, sand dropseed, sand muhly, and broom snakeweed increase under continuous heavy grazing or prolonged periods of drought. Under continued retrogression burrograss can completely dominate the site. Creosotebush, tarbush, and mesquite, can also dominate. Cholla and prickly pear can increase on areas that are disturbed or overgrazed. Diagnosis: Tobosa, black grama, and blue grama are the dominant species. Grass cover is uniformly distributed with few large bare areas. Shrubs are sparse and evenly distributed. Slopes range from level to gently sloping and usually display limited evidence of active rills and gully formation if plant cover remains intact. Litter movement associated with overland flow is limited to smaller size class litter and short distances. Other shrubs include: yucca, mesquite, tarbush, cholla and creosote bush. Other forbs include: desert holly, scorpionweed, bladderpod, flax, nama, fleabane, Indianwheat, Indian blanket flower, groundcherry, deerstongue, and rayless goldenrod.

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

Figure 5. Plant community growth curve (percent production by month). NM2807, R042XC007NM Loamy HCPC. R042XC007NM Loamy HCPC Warm Season Plant Community..

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

State 2

Burrograss-Grassland

Community 2.1
Burrograss-Grassland

Burrograss-Grassland: Changes in hydrology resulting in decreased available soil moisture, reduces grass cover and increases bare ground. Burrograss is the dominant grass. Tobosa cover is variable and can range from sizeable areas to small patches occupying only depressions or the lowest and wettest positions within the site. Threeawns, ear muhly, sand muhly, and fluffgrass occur at increased densities compared to the grassland state. Shrub densities may increase especially mesquite, creosotebush or tarbush. Retrogression within this state is characterized by a further decrease in grass cover and increased bare ground. Further deterioration of this site can result in the transition to a bare state or becoming shrub dominated. Diagnosis: Burrograss is the dominant species. Grass cover is no longer uniformly distributed, instead tending to be patchy with large areas of bare ground present. Physical crusts are present in bare areas reducing infiltration and suppressing seedling establishment by any grass species other than burrograss. Transition to Burrograss-Grassland (1a): Transitions from grassland to a burrograss-grassland state may occur due to changes in hydrology. Gullies, roads or obstructions that alter natural water flow patterns may cause this transition. Changes in surface hydrology may also occur due to overgrazing or drought. The reduction in grass cover promotes increased soil physical crusts and reduces infiltration. 5 Key indicators of approach to transition: ? Diversion of overland flow resulting in decreased soil moisture. ? Increase in amount of burrograss cover ? Reduction in grass cover and increase in size and frequency of bare patches. ? Formation of physical crusts—indicating reduced infiltration. ? Evidence of litter movement—indicating loss or redistribution of organic matter. Transition back to Grassland (1b) The natural hydrology of the site must be returned. Culverts, turnouts, or rerouting roads may help re-establish natural overland flow, if roads or trails have altered the hydrology. Erosion control structures or shaping and filling gullies may help regain natural flow patterns and establish vegetation if the flow has been channeled. Breaking up physical crusts by soil disturbance may promote infiltration and seedling emergence. Allow natural revegetation to take place. Prescribed grazing will help ensure proper forage utilization and reduce grass loss due to grazing.

State 3
Bare State

Community 3.1
Bare State

Bare State: Extremely low ground cover, soil degradation and erosion characterize this state. Very little vegetation remains. Burrograss is the dominant grass and cover is extremely patchy. Physical soil crusts are extensive. Erosion and resource depletion increase as site degrades. Diagnosis: Very little cover remains. Erosion is evident by soil sealing, water flow patterns, pedestals or terracettes. Rills and gullies may be present and active. Transition to Bare State (2a): Extended drought, continuous heavy grazing, or other disturbance that severely depletes grass cover can effect this transition. As grass cover decreases, sheet flow and erosion increase, and physical soil crusts form, thereby further reducing infiltration. Key indicators of approach to transition: ? Continued reduction in grass cover. ? Increased soil surface sealing. ? Increased erosion. ? Reduced aggregate stability in bare areas. Transition back to Grassland (2b) Restore the hydrology, see (1a). With the extent of grass loss range seeding may be necessary. Utilizing livestock or mechanical means to break up the physical crusts may increase infiltration and aid seedling establishment. Prescribed grazing will help ensure adequate deferment period following seeding, and proper forage utilization once the grass stand is well established. The degree to which this site is capable of recovery depends on the restoration of hydrology, extent of degradation to soil resources, and adequate rainfall necessary to establish grasses.

State 4
Grass/Succulent Mix

Community 4.1
Grass/Succulent Mix

Grass / Succulent Mix: Increased representations of succulents characterize this site. Increased densities of cholla or pricklypear is recognized as a management concern, but their impact on grass production is unclear. Light to

medium cholla or prickly pear infestation doesn't seem to greatly reduce grass production, however it limits access to palatable grasses and interferes with livestock movement and handling. Tobosa and blue grama are the dominant species on this site. Retrogression within this site is characterized by a decrease in blue grama and an increase in succulents, tobosa and burrograss. Diagnosis: Cholla or prickly pear is found at increased densities. Grass cover is variable ranging from uniformly distributed to patchy with frequent areas of bare ground present. Tobosa or blue grama is the dominant grass species. Transition to Grass/Succulent Mix (3a): If fire was historically a part of desert grassland ecosystem and played a role in suppressing seedlings of shrubs and succulents, then fire suppression may favor the increase of succulents.1 Heavy grazing by livestock or other physical disturbances may help disseminate seed and increase the establishment of succulents. Areas historically overgrazed by sheep are sometimes associated with higher densities of Succulents. Intense hailstorms can spread pricklypear by breaking off joints causing new plants to take root.3 During severe drought perennial grass cover can decline significantly, leaving resources available for use by more drought tolerant succulents. Cholla and pricklypear are both adapted to and favored by drought due to the ability of their shallow, wide spreading root systems to absorb and store water.4 Key indicators of approach to transition: ? Decrease or change in distribution of grass cover. ? Increase in amount of succulent seedlings. ? Increased cover of succulents. Transition back to Grassland (3b) Fire is an effective means of controlling cholla and prickly pear if adequate grass cover remains to carry fire.2 Cholla greater than two feet tall or pricklypear with a large amount of pads (>15-20) are harder to kill. Chemical control is effective in controlling prickly pear and cholla; apply when growth starts in May. Hand grubbing is also effective if cholla or pricklypear is severed 2-4 inches below ground and care is taken not to let broken joints or pads take root. Stacking and burning piles and grubbing during winter or drought help keeps broken joints and pads from rooting. Prescribed grazing will help ensure proper forage utilization and sustain grass cover.

State 5
Shrub Dominated

Community 5.1
Shrub Dominated

Shrub Dominated: Increased shrub cover characterizes this state. Mesquite, creosotebush, and/or tarbush are the dominant shrub species. Burrograss or tobosa is the dominant grass species. Grass cover is decreased, typically patchy with large bare areas present; however, sometimes grass cover can remain relatively high for extended periods when associated with light to moderate infestations of mesquite. Variations in soil characteristics play a part in determining which shrub species increase. Mesquite is well adapted to a wide range of soil types, but increases more often on deep soils low in carbonates, that have a sandy surface overlying finer textured soils. Tarbush prefers finer textured, calcareous soils, usually in lower positions that receive some extra water. Creosotebush is less tolerant of fine textured soils, preferring sandy, calcareous soils that have some gravel. Creosotebush also does well on soils that are shallow over caliche. Retrogression within this state is characterized by a decrease in tobosa, and an increase in burrograss. As the site continues to degrade shrub cover continues to increase and grass cover is severely reduced. Diagnosis: Mesquite, Creosotebush, and/or tarbush are the dominant shrubs. Blue grama and black grama cover is low or absent. Burrograss or tobosa are the dominant grasses. Typically grass cover is patchy with large interconnected bare areas present. Physical soil crusts are present, especially on silt loam surface soils. Transition to Shrub Dominated (4a): Wildlife and livestock consume and disperse mesquite seeds. Flood events may wash creosote or tarbush seeds off adjacent gravelly sites onto the loamy site and supply adequate moisture for germination. Persistent loss of grass cover due to overgrazing or drought can cause large bare patches, providing competition free areas for shrub seedling establishment. As shrub cover increases, competition for soil resources, especially water, becomes a major factor in further reducing grass cover. Reduction of fire, due to either fire suppression policy or loss of adequate fine fuels may increase the probability of shrub encroachment. Increased soil surface physical crusts and associated decreased infiltration, may prevent the establishment of grass seedlings. Transition to Shrub Dominated (5): The dispersal of creosotebush, tarbush or mesquite seed, combined with loss of grass cover and resource competition by shrubs may cause this transition. Key indicators of approach to transition: ? Decreased grass and litter cover. ? Increased bare patch size. ? Increased physical soil crusts. ? Increased amount of mesquite, creosotebush, or tarbush seedlings. ? Increased shrub cover. Transition back to Grassland (4b) Brush control will be necessary to remove shrubs and eliminate competition for resources necessary for grass establishment or reproduction. Seeding may be necessary on those sites where desired grass species are absent or very limited. Pitting and seeding may increase the chances of successful grass establishment. Prescribed grazing will help ensure adequate time is elapsed before grazing seeded area is allowed and proper forage utilization following seeding establishment. Transition to Bare State (6): If grass cover on the shrub-dominated state is

severely limited and shrubs are removed a bare state may result. This transition will depend on amount of grasses or seed remaining, whether site is seeded, or if seeding is successful. Transition to Bare State (7): Removal of succulents and continued overgrazing or drought may cause loss of remaining grasses and erosion. Soil surface physical crusting may also be an important factor in inhibiting grass seedling establishment

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Warm Season**			278–324	
	tobosagrass	PLMU3	*Pleuraphis mutica*	278–324	–
2	**Warm Season**			9–46	
	burrograss	SCBR2	*Scleropogon brevifolius*	9–46	–
3	**Warm Season**			231–278	
	black grama	BOER4	*Bouteloua eriopoda*	231–278	–
	blue grama	BOGR2	*Bouteloua gracilis*	231–278	–
4	**Warm Season**			28–46	
	sideoats grama	BOCU	*Bouteloua curtipendula*	28–46	–
5	**Warm Season**			46–93	
	bush muhly	MUPO2	*Muhlenbergia porteri*	46–93	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	46–93	–
6	**Warm Season**			9–28	
	Arizona cottontop	DICA8	*Digitaria californica*	9–28	–
7	**Warm Season**			46–93	
	threeawn	ARIST	*Aristida*	46–93	–
	muhly	MUHLE	*Muhlenbergia*	46–93	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	46–93	–
8	**Warm Season**			28–46	
	Graminoid (grass or grass-like)	2GRAM	*Graminoid (grass or grass-like)*	28–46	–
Shrub/Vine					
9	**Shrub**			9–28	
	fourwing saltbush	ATCA2	*Atriplex canescens*	9–28	–
	jointfir	EPHED	*Ephedra*	9–28	–
	winterfat	KRLA2	*Krascheninnikovia lanata*	9–28	–
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	5–24	–
	Arizona cottontop	DICA8	*Digitaria californica*	5–24	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	5–24	–
10	**Shrub**			9–28	
	javelina bush	COER5	*Condalia ericoides*	9–28	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	9–28	–
	Grass, annual	2GA	*Grass, annual*	5–15	–
11	**Shrubs**			9–28	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	9–28	–
Forb					

12	**Forb**			9–46	
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	9–46	–
	globemallow	SPHAE	*Sphaeralcea*	9–46	–
	verbena	VEPO4	*Verbena polystachya*	9–46	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	5–15	–
	pricklypear	OPUNT	*Opuntia*	5–15	–
13	**Forb**			9–28	
	croton	CROTO	*Croton*	9–28	–
	woolly groundsel	PACA15	*Packera cana*	9–28	–
14	**Forb**			9–28	
	Goodding's tansyaster	MAPIG2	*Machaeranthera pinnatifida ssp. gooddingii var. gooddingii*	9–28	–
	woolly paperflower	PSTA	*Psilostrophe tagetina*	9–28	–
15	**Forb**			9–28	
	redstem stork's bill	ERCI6	*Erodium cicutarium*	9–28	–
	Texas stork's bill	ERTE13	*Erodium texanum*	9–28	–
16	**Forb**			9–28	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	9–28	–

Animal community

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

Hydrological functions

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

Hydrologic Interpretations
Soil Series Hydrologic Group
Atoka C
Bigetty B
Ratliff B
Reyab B
Holloman B
Largo B
Holloman B
Bigetty B
Berino B
Reagan B
Reakor B
Reeves B
Russler C

Recreational uses

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

Wood products

This site has no potential for wood products

Other products

This site is suitable for grazing by all kinds and classes of livestock, during all seasons of the year. Under retrogression, such plants as black grama, blue grama, sideoats grama, bush muhly, plains bristlegrass, Arizona cottontop, fourwing saltbush and winterfat decrease and there is an increase in burrograss, threeawns, sand dropseed, muhlys, broom snakeweed and javilinabush. Under continued retrogression, burrograss can completely dominate the site. Creosotebush, mesquite, and tarbush can also dominate. Grazing management alone will not improve the site in the above situation. This site is well suited to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index Ac/AUM
100 - 76 3.0 – 4.2
75 – 51 4.1 – 5.5
50 – 26 5.3 – 7.0
25 – 0 7.1 +

Inventory data references

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

Other references

Literature References:

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

2. Bunting, S.C., H.A. Wright, and L.F. Neuenschwander. 1980. Long-term effects of fire on cactus in the Southern Mixed Prairie of Texas. J. Range. Manage. 33: 85-88.

3. Laycock, W.A. 1982. Hail as an ecological factor in the increase of prickly
pear cactus. p. 359-361. In: J.A. Smith and V.W. Hays (eds.) Proc. XIV Int. Grassland Congr. Westview Press, Boulder, Colo.

4. Vallentine, J.F. 1989. Range Developments and Improvements. 3rd Edition. Academic Press. San Diego, California.

5. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheet. Rangeland Soil Quality—Physical and Biological Soil Crusts. Rangeland Sheet 6, [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

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

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

Indicators

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

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

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

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

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

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

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

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

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

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial**

distribution on infiltration and runoff:

---

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

---

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

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

---

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

---

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

---

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

---

17. **Perennial plant reproductive capability:**

USDA Natural Resources Conservation Service

Ecological site R070BD002NM
Shallow Sandy

Accessed: 10/24/2023

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 sites often occur in association or in a complex with Shallow Sandy Sites.

Similar sites

R070BD004NM	**Sandy** Sandy ecological sites are similar to Shallow Sandy sites in species composition and Transition pathways.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

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

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

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

Characteristic soils are:
Simona
Jerag

Table 4. Representative soil features

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

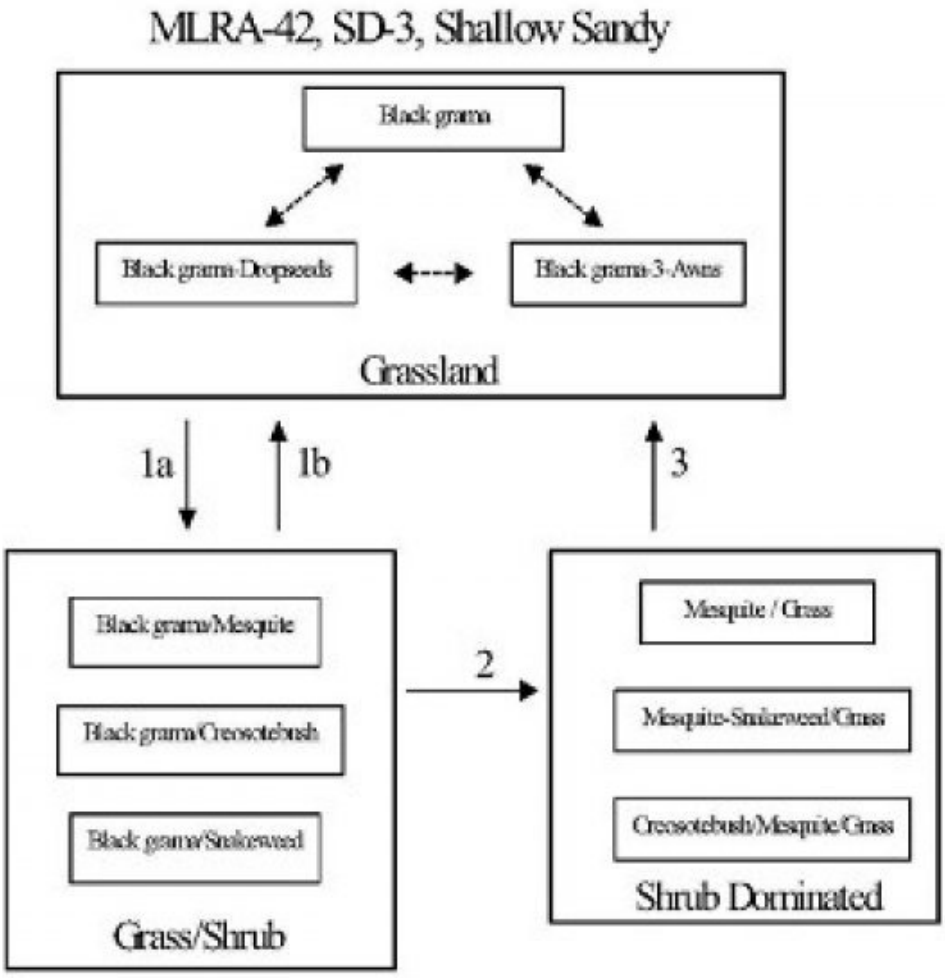
Soil depth	7–24 in
Surface fragment cover <=3"	5–25%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	5–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8
Subsurface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

Ecological dynamics

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

State and transition model

Plant Communities and Transitional Pathways (diagram)



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

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

3. Brush control, range seeding, prescribed grazing.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

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

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

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

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

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

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

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

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

Additional community tables

Table 7. Community 1.1 plant community composition

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

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

Animal community

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

Hydrological functions

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

Hydrologic Interpretations
Soil Series Hydrologic Group
Jarag D
Simona D

Recreational uses

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

Wood products

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

Other products

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

Other information

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

Inventory data references

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

Other references

Literature References:

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

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

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

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

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

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

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

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

Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

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

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

Indicators

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

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

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

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

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

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

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

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

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

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

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

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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

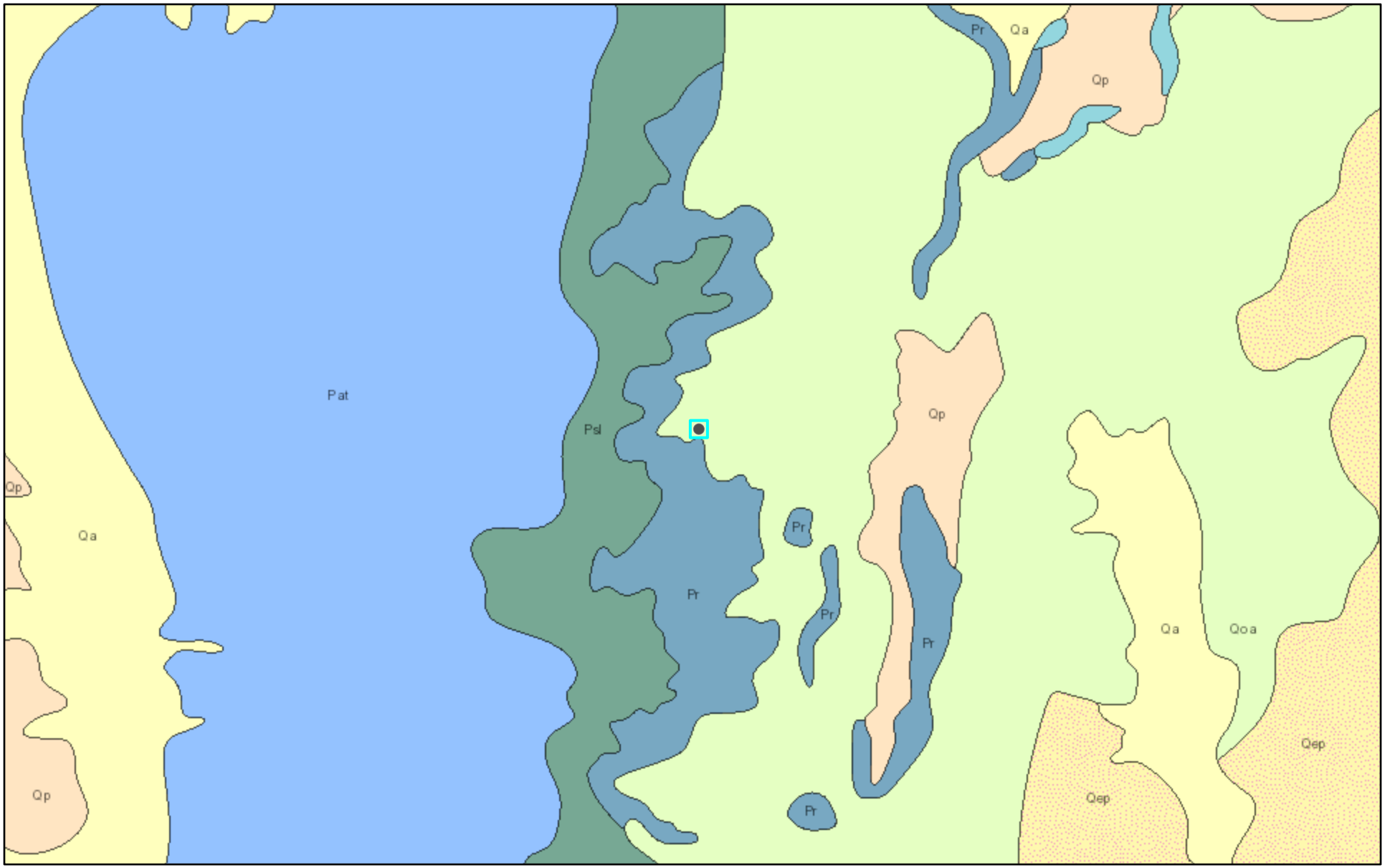
14. **Average percent litter cover (%) and depth (in):**

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

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

17. **Perennial plant reproductive capability:**

Dickens 29 Federal #003H



10/23/2023, 7:53:35 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

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

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

ArcGIS Web AppBuilder

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global

APPENDIX C – Daily Field Reports

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	11/22/2023
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	11/27/2023 10:18 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	11/22/2023 2:47 PM
Departed Site	11/22/2023 4:19 PM

Daily Site Visit Report

Site Sketch

Site Sketch

Daily Site Visit Report

Field Notes

15:36 On site to complete liner inspection for tank battery. Completed safety paperwork upon arrival

15:36 Outside of containment looks to be clean and there is no sign of a breach.

15:36 There does not appear to be anything significant damage inside or outside the containment wall.

15:37 The floor of the liner does not appear to have any significant damage. No damage on the wall for any side.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Site placard

Viewing Direction: Southeast

NW edge CTB

Viewing Direction: Southwest

NE edge CTB

Viewing Direction: Northwest

SE edge CTB

Daily Site Visit Report

Viewing Direction: Northeast

SW edge CTB

Viewing Direction: South

Outside wall NW side

Viewing Direction: South

Inside wall NW side

Viewing Direction: East

Outside wall NW side

Daily Site Visit Report

Viewing Direction: East

Inside wall NW side

Viewing Direction: East

Outside wall between tank battery 55835 and 65836

Viewing Direction: East

Inside wall between tank battery 55835 and 65836. North side

Viewing Direction: West

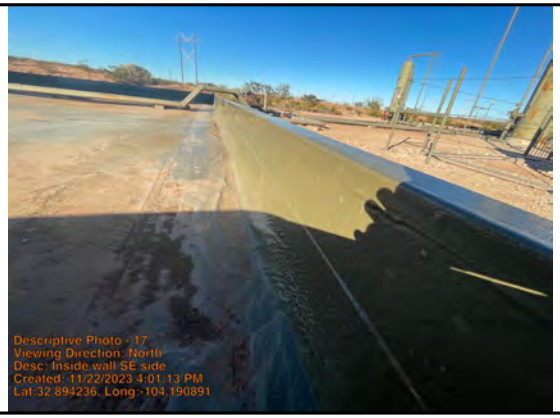
Outside wall NE side

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: South
	
Inside wall NE side	Outside wall NE side
Viewing Direction: South	**Viewing Direction**: North
	
Inside wall NE side	Outside wall SE side

Daily Site Visit Report

Viewing Direction: North



Inside wall SE side

Viewing Direction: West

Outside wall SE side

Viewing Direction: West

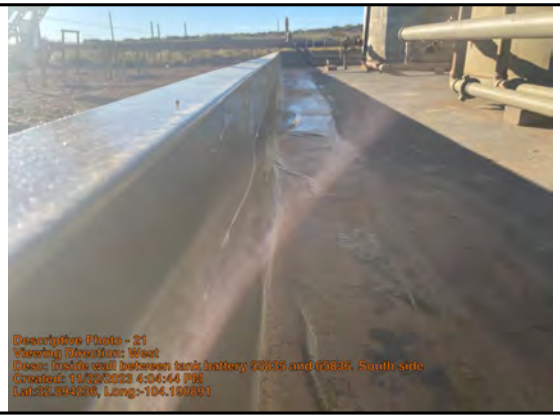
Inside wall SE side

Viewing Direction: West

Outside wall between tank battery 55835 and 65836. South side

Daily Site Visit Report

Viewing Direction: West



Inside wall between tank battery 55835 and 65836. South side

Viewing Direction: North

Outside wall SW side

Viewing Direction: North

Inside wall SW side

Viewing Direction: East

Liner floor NE side between tank battery 55835 and 65836.

Daily Site Visit Report

Viewing Direction: East

Liner floor NW side between tank battery 55835 and 65836.

Viewing Direction: West

Liner floor NE side between tank battery 55835 and 65836.

Viewing Direction: West

Liner floor NW side between tank battery 55835 and 65836.

Viewing Direction: East

Liner floor SE side after the tank batteries.

Daily Site Visit Report

Viewing Direction: East

Liner floor SW side after the tank batteries.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature: 

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	1/6/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	1/7/2024 12:20 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/6/2024 7:50 AM
Departed Site	1/6/2024 3:45 PM

Field Notes

8:02 Arrived on site at approximately 750am. On site to conduct delineation of site. Completed/reviewed safety paperwork

9:31 Collected BH24-01 to BH24-08, samples taken at 0’ and 1’ depth at each bore hole.

15:03 BH23-03 sampled at additional 2’ and 4’ depth.

15:09 Collected BH24-09 and BH24-10. Samples taken at 0’ and 1’ depth.

Next Steps & Recommendations

1 Send samples to lab

Daily Site Visit Report

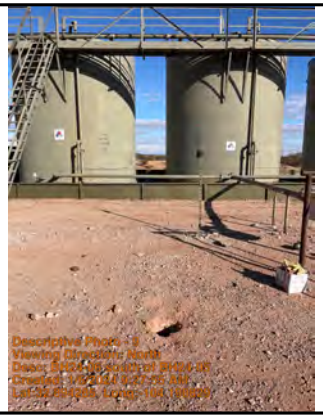
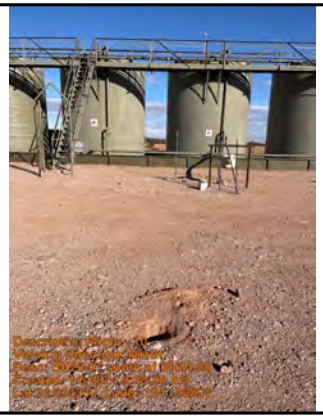
Site Photos

Viewing Direction: North	**Viewing Direction**: North
	
Placard	Release area near load outs
Viewing Direction: West	**Viewing Direction**: East
	
Release area near load outs	BH24-01 southwest of loadouts

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
BH24-02 south of battery	BH24-03 south of load outs
Viewing Direction: North	**Viewing Direction**: North
	
BH24-04 south of BH24-03	BH24-05 south of battery, east of load outs

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
BH24-06 south of BH24-05	BH25-07 south of BH24-06
Viewing Direction: West	**Viewing Direction**: South
	
BH24-08 south of battery, east of BH24-06	BH24-09 north of battery.

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: North
	
BH24-10 west of battery	Sample area west of release area and battery
Viewing Direction: North	**Viewing Direction**: North
	
Release area south of load outs	Release area south of load outs

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: West
	
Release area south east of load outs	Release area south of battery

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature: 
Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	1/7/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	1/8/2024 1:28 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/7/2024 8:30 AM
Departed Site	1/7/2024 3:50 PM

Field Notes

9:09 Arrived at approximately 830 am. On site to conduct delineation/field screen samples. Completed/reviewed safety paperwork

10:49 Collected samples from BH24-01, BH24-02, BH24-04 to BH24-10 at 2’ depth.

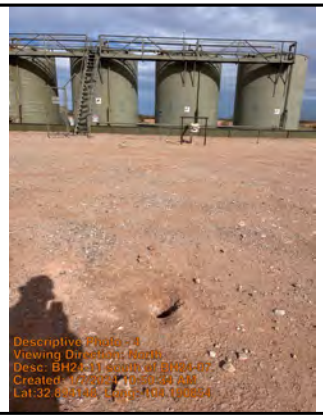
15:42 Collected BH24-11 south of BH24-07 at 0’ and 2’ depth

Next Steps & Recommendations

1 Send samples to lab

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: West
	
Placard	Area of release
Viewing Direction: North	**Viewing Direction**: North
	
Area of release	BH24-11 south of BH24-07. Samples collected at 0’ and 2’ depth.

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: East
	
Release area	Release area

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature: 
Signature

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	1/17/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	1/18/2024 12:11 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/17/2024 9:45 AM
Departed Site	1/17/2024 2:40 PM

Field Notes

16:39 Completed safety paperwork and initial line locate

16:40 Obtained samples:
BH24-12 through BH24-15 (8 samples in total)

16:41 Updated sample locations on the characterization collector table

16:41 Field screened all samples for chloride

16:45 Jarred all samples

Next Steps & Recommendations

1 Continue delineation

Daily Site Visit Report

Site Photos

Viewing Direction: South

BH24-13 at 0’

Viewing Direction: South

BH24-12 at 0’

Viewing Direction: South

BH24-15 at 2’

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	1/18/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	1/19/2024 2:01 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/18/2024 8:37 AM
Departed Site	1/18/2024 3:50 PM

Field Notes

8:38 Arrived on site completed and safety paperwork/ initial line locate

17:33 Obtained samples:
BH24-16 through BH24-23
16 samples in total.

17:33 All samples were obtained at 0’ and 2’

17:33 Field screened all samples for chloride

17:34 Jarred all samples

17:34 Updated new sample points to the characterization collector table.

Next Steps & Recommendations

1 Continue delineation

Daily Site Visit Report

Site Photos

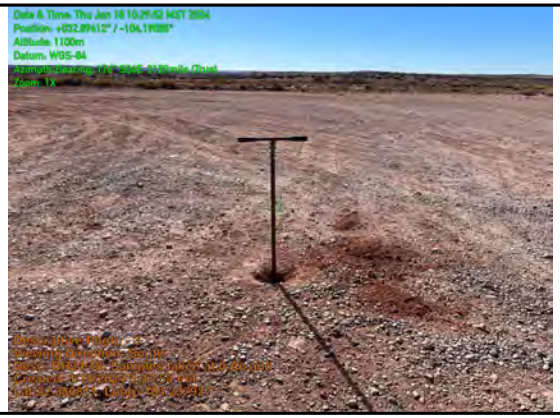
Viewing Direction: South

BH24-16: Samples taken at 0’ and 2’

Viewing Direction: North

BH24-17: Samples taken at 0’ and 2’

Viewing Direction: South



BH24-18: Samples taken at 0’ and 2’

Viewing Direction: North

BH24-20: Samples taken at 0’ and 2’. Sample location was stepped out 5ft east from BH24-16

Daily Site Visit Report

Viewing Direction: South

BH24-19: Samples taken at 0’ and 2’

Viewing Direction: Northeast

BH24-21: Samples taken at 0’ and 2’. Sample location was stepped out 5ft east from BH24-17

Viewing Direction: North

BH24-22: Samples taken at 0’ and 2’. Sample location was stepped out 5ft south from BH24-18

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	1/19/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	1/20/2024 12:38 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/19/2024 8:01 AM
Departed Site	1/19/2024 2:40 PM

Field Notes

13:48 Arrived on site and completed initial safety paperwork/ initial line locate

17:20 Obtained samples: BH24-24 through BH24-30. 14 samples in total

17:20 Samples were taken at 0’ and 2’

17:21 BH24-28 hit refusal at 1.5’

17:23 Field screened samples 14 samples using silver nitrate titration. 9 samples were field screened for TPH.

17:24 12 samples were jarred to be tested at the lab

Next Steps & Recommendations

1 Continue delineation

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Southwest
	
Area of Release	BH24-24, samples taken at 0’ and 2’
Viewing Direction: North	**Viewing Direction**: North
	
BH24-24 at 2’, samples were taken at 0’ and 2’	BH24-26 at 2’, samples were taken at 0’ and 2’

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: South
	
BH24-26 at 2’, samples were taken at 0’ and 2’	BH24-28 at 1’ refusal. Samples taken at 0’ and 1’

Viewing Direction: South	**Viewing Direction**: East
	
BH24-29 at 2’, samples taken at 0’and 2’	BH23-30 at 2’, samples were taken at 0’ and 2’

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	1/22/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	1/22/2024 10:55 PM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/22/2024 8:00 AM
Departed Site	1/22/2024 2:00 PM

Field Notes

8:01 Arrived on site, completed initial safety paperwork and initial line locate

8:32 Swept the area with the magnetic line locator

13:24 Obtained samples:
BH24-11, 19, 23, 24, 28, 30 at 4'depth.
BH24-31 and BH24-32 at 0' and 2' depth

13:25 Samples taken at 4' were above criteria at 2'

13:26 Field screened all samples using silver nitrate titration and the petroflag

13:27 Samples were all within criteria for Cholrides and TPH

13:27 All samples were jarred to be sent to the lab

Next Steps & Recommendations

1 Wait for lab confirmation of samples

Daily Site Visit Report

Site Photos

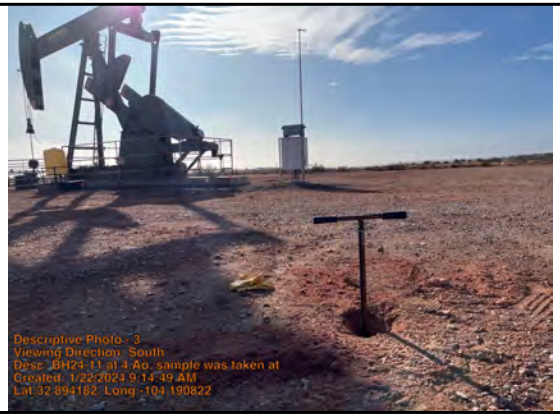
Viewing Direction: North

BH24-31 at 2’, samples were taken at 0’ and 2’

Viewing Direction: East

BH24-32 at 2’. Samples were obtained at 0’ and 2’

Viewing Direction: South



BH24-11 at 4’, sample was taken at 4’

Viewing Direction: West

BH24-28 at 4’, sample taken at 4’

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: North
	
BH24-24 at 4’ sample was taken at 4’	BH24-19 at 4’ sample taken at 4’
Viewing Direction: West	**Viewing Direction**: North
	
BH24-30 at 4’, sample taken at 4’	BH24-23 at 4’ Sample taken at 4’

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	4/2/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	4/3/2024 12:07 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	4/2/2024 9:12 AM
Departed Site	4/2/2024 4:26 PM

Field Notes

15:58 Arrived at approximately 912 am. On site to collect confirmation samples from excavation.

Assessed site for safety and filled out the days JSAs.

Mapped the perimeter of 1’ excavation on gps and saved into field maps.

Mapped 2’ excavation with gps and saved into field maps.

16:02 Began to collect WS24-01 on south wall of 1’ excavation; WS24-02 on east wall of 1’ excavation; WS24-03 on north wall of 1’ excavation; and WS24-04 on west wall of 1’ excavation.

Collected WS24-05 on north and west wall of 2’ excavation and WS24-06 on southeast wall of 2’ excavation.

Collected BS24-01 to BS24-08 on south end of 1’ excavation.

16:25 All samples field screened for VOC (PID) and CL (titration).

WS24-01 to WS24-03, BS24-02, and BS24-06 to BS24-08 passed field screening criteria. All other samples tested out of spec for chlorides

Daily Site Visit Report

16:25 WS24-01 to WS24-03; BS24-02, BS24-06 to BS24-08 tested for hydrocarbons using petroflag

WS24-01, BS24-02, and BS24-06 to BS24-08 passed field testing criteria

WS24-02 and WS24-03 tested out of spec.

Next Steps & Recommendations

1 Jarred 7 samples that passed field tests for CL, decide which of these to send to laboratory for further analysis

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Northwest
	
Southwest corner of 1’ excavation	Southeast corner of 1’ excavation
Viewing Direction: Northwest	**Viewing Direction**: Southwest
	
Southeast corner of 1’ excavation	East side of 1’ excavation

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: Southeast
	
East side of viewing north section of 1’ excavation	Northwest corner of 1’ excavation

Viewing Direction: South	**Viewing Direction**: East
	
Northwest corner of 1’ excavation	South wall of 2’ excavation facing north. Area where WS24-05 was collected

Daily Site Visit Report

Viewing Direction: South

Weat wall of 2’ excavation facing east. Area where WS24-06 was collected

Viewing Direction: East

South wall and end of 1’ excavation, area where WS24-01 and BS24-01 to BS24-08 was collected

Viewing Direction: North

East wall of 1’ excavation, area where WS24-02 was collected

Viewing Direction: Northwest

north wall of 1’ excavation, area where WS24-03 was collected

Daily Site Visit Report

Viewing Direction: North

West wall of 1’ excavation, area where WS24-04 was collected

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature: 

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	4/3/2024
Site Location Name:		Report Run Date:	4/4/2024 12:08 AM
Client Contact Name:	Matt Buckles	API #:	
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	4/3/2024 7:39 AM
Departed Site	4/3/2024 4:03 PM

Field Notes

14:55 Arrived at approximately 740 am.
On site to collect confirmation samples from excavation.
Assessed site for safety and filled out the days JSAs.

15:01 Collected BS24-09 to BS24-31. All samples were collected at 1’ excavations depth except BS24-29 which was collected at 2’ excavation depth.

All samples field screened for VOC (PID) and CL (titration).

All samples passed VOC field screening criteria.

Only samples BS24-09, BS24-11 to BS24-13, and BS24-20 passed field screening criteria for chloride. These samples were tested for TPH using PetroFlag. All samples passed field screening criteria

Next Steps & Recommendations

1 Check with PM to see which samples will be sent to the laboratory for further analysis

Daily Site Visit Report

Site Photos

Viewing Direction: North 	**Viewing Direction**: North 
Excavation/area for confirmation sampling	Excavation/area for confirmation sampling
Viewing Direction: West 	**Viewing Direction**: North 
Excavation/area for confirmation sampling	Area of excavation BS24-09 to BS24-15 were collected.

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
Area of excavation BS24-16 to BS24-18 and BS24-23 to BS24-25 were collected.	Area of excavation BS24-19-BS24-22 were collected
Viewing Direction: North	**Viewing Direction**: North
	
Area of excavation BS24-26 to BS24-28 were collected	Area of excavation BS24-29 (at 2’ depth) to BS24-30 (at 1’ depth) were collected

Daily Site Visit Report

Viewing Direction: North

Area of excavation BS24-31 was collected

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature: 

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	4/18/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	4/19/2024 11:57 AM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	4/18/2024 7:04 AM
Departed Site	4/18/2024 5:35 PM

Field Notes

16:08 Completed JSA on arrival. On site to continue excavation and confirmation sampling. Conducted safety meeting with work crew.

16:09 Swept excavation areas with magnetic locator prior to ground disturbance.

16:10 Work crew increased depths of northwest corner of excavation to remove additional soil exceeding NMOCD threshold for chloride.

16:14 Final depth in corner of excavation against tank battery was 2.5 feet bgs. Final depth of inside excavation was 3.5 feet bgs.

20:58 Collected wall samples WS24-04, WS24-06, WS24-07, and WS24-08 from excavation surfaces on west side of excavation. Field screening results were below NMOCD strictest criteria for chloride and TPH.

5:13 Collected base samples BS24-17, BS24-21 through BS24-23, and BS24-28 through BS24-34 from excavation surfaces on west side of excavation. Field screening results were below NMOCD strictest criteria for chloride and TPH.

21:00 Continue confirmation sampling.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Southwest of tank battery facing north.

Viewing Direction: East

West edge of pad facing east over 1, 2.5, and 3.5 feet bgs excavations.

Viewing Direction: Southeast

West edge of pad facing southeast east over 1, 2.5, and 3.5 feet bgs excavations.

Viewing Direction: South

Southwest of tanks facing south over 1, 2.5, and 3.5 feet bgs excavations.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
South of tanks facing south over 1, 2.5, and 3.5 feet bgs excavations.	South of tanks facing west over 1, 2.5, and 3.5 feet bgs excavations.
Viewing Direction: Southwest	**Viewing Direction**: Northwest
	
South of tanks facing southwest over 1, 2.5, and 3.5 feet bgs excavations.	Inside excavation facing northwest over 1, 2.5, and 3.5 feet bgs excavations.

Daily Site Visit Report

Viewing Direction: North

Inside excavation facing north over 1, 2.5, and 3.5 feet bgs excavations.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature: 

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	4/19/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	4/19/2024 9:52 PM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	4/19/2024 8:09 AM
Departed Site	4/19/2024 1:27 PM

Field Notes

8:16 Completed JSA on arrival. On site to complete excavation confirmation sampling.

8:37 Identified confirmation sampling areas and swept with magnetic locator prior to ground disturbance.

12:34 Excavation was completed previous day. Remaining confirmation sampling to be completed. All excavation wall and most excavation base confirmation samples were collected previously.

12:35 Collected base excavation confirmation samples BS24-01, BS24-03 through BS24-05, BS24-16, BS24-18, BS24-24, BS24-26, BS24-27, and BS24-35 at 1 feet bgs.

12:36 Field screening results for all samples were below NMOCD strictest criteria for chloride and TPH. Excavation and confirmation sampling completed pending laboratory results.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Southwest of tank battery facing north.

Viewing Direction: West

South of tank battery facing west. Excavations to 1, 2.5, and 3.5 feet bgs.

Viewing Direction: Southwest

South of tank battery facing southwest. Excavations to 1, 2.5, and 3.5 feet bgs.

Viewing Direction: West

Southeast of tank battery facing west. Excavation to 1 feet bgs.

Daily Site Visit Report

Viewing Direction: Southwest	**Viewing Direction**: Northwest
	
Southeast of tank battery facing southwest. Excavation to 1 feet bgs.	North of pump jack facing northwest. Excavation to 1 feet bgs.
Viewing Direction: West	**Viewing Direction**: West
	
North of pump jack facing west. Excavation to 1 feet bgs.	West edge of pad facing west. Excavation to 1 feet bgs.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: North
	
West edge of pad facing northwest. Excavation to 1 feet bgs.	West edge of pad facing north. Excavation to 1 feet bgs.
Viewing Direction: Southeast	**Viewing Direction**: East
	
West edge of pad facing southeast. Excavations to 1, 2.5, and 3.5 feet bgs.	West edge of pad facing east. Excavations to 1, 2.5, and 3.5 feet bgs.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: South
	
West edge of pad facing northeast. Excavations to 1, 2.5, and 3.5 feet bgs.	Southwest of tanks facing south. Excavations to 1, 2.5, and 3.5 feet bgs.
Viewing Direction: Southeast	**Viewing Direction**: East
	
Southwest of tanks facing southeast. Excavations to 1, 2.5, and 3.5 feet bgs.	Southwest of tanks facing east. Excavations to 1, 2.5, and 3.5 feet bgs.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
South of tanks facing south. Excavations to 1, 2.5, and 3.5 feet bgs.	On staircase to tanks facing west. Excavations to 1, 2.5, and 3.5 feet bgs.
Viewing Direction: Southwest	**Viewing Direction**: South
	
On staircase to tanks facing southwest. Excavations to 1, 2.5, and 3.5 feet bgs.	On staircase to tanks facing south. Excavations to 1 and 3.5 feet bgs.

Daily Site Visit Report

Viewing Direction: Southeast

On staircase to tanks facing south. Excavation to 1 feet bgs.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Daily Site Visit Report

Client:	Mack Energy Corporation	Inspection Date:	5/14/2024
Site Location Name:	Dickens 29 Federal #003H	Report Run Date:	5/14/2024 6:43 PM
Client Contact Name:	Matt Buckles	API #:	30-015-37220
Client Contact Phone #:	575-748-1288		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/14/2024 9:43 AM
Departed Site	5/14/2024 10:50 AM

Field Notes

9:44 Arrived on site, completed safety paperwork.

12:35 On site to document that the backfilling of the excavation has been completed.

10:34 The entire excavation has been backfilled. Areas of the excavation where infrastructure was left in place adjacent to the tank battery, appears to have no structural defects or damages.

12:36 The entire pad has been graded flat.

12:39 No evidence of a left over soil pile is present. Excess backfill material appears to have been used along the western border of the pad to build up the already existing earthen berm.

12:39 All the equipment and infrastructure outside the excavation show no signs of damage.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Northwest	**Viewing Direction**: East
	
Backfilled 1’bgs area on the southern portion of the excavation.	Northern 3.5’ bgs excavation has been backfilled.

Daily Site Visit Report

Viewing Direction: North

2.5’ bgs excavation on the northwest border has been backfilled.

Viewing Direction: East

Backfilled 2.5’ bgs area on the northern part of the excavation has been backfilled. No structural damages are present to the infrastructure.

Viewing Direction: North

Backfilled 1’bgs excavation on the north end of the pad. No structural issues present at the staircase.

Viewing Direction: West

Eastern 1’ bgs area has been backfilled.

Daily Site Visit Report

Viewing Direction: Northeast

Entire excavation has been back filled. The earthen berm has been built back up along the western border of the pad.

Viewing Direction: South

Area around the pump jack appear to be undamaged.

Viewing Direction: Northwest

Backside of the pump jack also appears to be undamaged by the excavation activities

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature: 

APPENDIX D – Notifications

OCD Permitting

[NOTIFY] Notification Of Sampling (C-141N) Application

Submission Information

Submission ID:	327987	**Districts:**	Artesia
Operator:	[13837] MACK ENERGY CORP	**Counties:**	Eddy
Description:	MACK ENERGY CORP [13837] , DICKENS 29 FEDERAL #003H , nAB1515240134		
Status:	APPROVED		
Status Date:	03/28/2024		
References (2):	30-015-37220, nAB1515240134		

Forms

This application type does not have attachments.

Questions

Prerequisites

Incident ID (n#)	**nAB1515240134**
Incident Name	**NAB1515240134 DICKENS 29 FEDERAL #003H @ 30-015-37220**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-015-37220] DICKENS 29 FEDERAL #003H**

Location of Release Source

Site Name	**DICKENS 29 FEDERAL #003H**
Date Release Discovered	**02/18/2015**
Surface Owner	**Federal**

Sampling Event General Information

Please answer all the questions in this group.

What is the sampling surface area in square feet	2,325
What is the estimated number of samples that will be gathered	15
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	04/02/2024
Time sampling will commence	08:00 AM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	Vertex Resources Sally Carter 575-361-3561
Please provide any information necessary for navigation to sampling site	32.8940582,-104.1905899

Comments

No comments found for this submission.

Conditions

Summary: *matt buckles (3/28/2024),* Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.

Reasons

No reasons found for this submission.

Go Back

OCD Permitting

[NOTIFY] Notification Of Sampling (C-141N) Application

Submission Information

Submission ID:	327993	**Districts:**	Artesia
Operator:	[13837] MACK ENERGY CORP	**Counties:**	Eddy
Description:	MACK ENERGY CORP [13837] , DICKENS 29 FEDERAL #003H , nAB1515240134		
Status:	APPROVED		
Status Date:	03/28/2024		
References (2):	30-015-37220, nAB1515240134		

Forms

This application type does not have attachments.

Questions

Prerequisites

Incident ID (n#)	**nAB1515240134**
Incident Name	**NAB1515240134 DICKENS 29 FEDERAL #003H @ 30-015-37220**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-015-37220] DICKENS 29 FEDERAL #003H**

Location of Release Source

Site Name	**DICKENS 29 FEDERAL #003H**
Date Release Discovered	**02/18/2015**
Surface Owner	**Federal**

Sampling Event General Information

Please answer all the questions in this group.

What is the sampling surface area in square feet	2,325
What is the estimated number of samples that will be gathered	15
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	04/03/2024
Time sampling will commence	08:00 AM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	Vertex Resources Sally Carter 575-361-3561
Please provide any information necessary for navigation to sampling site	32.8940582,-104.1905899

Comments

No comments found for this submission.

Conditions

Summary: *matt buckles (3/28/2024),* Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.

Reasons

No reasons found for this submission.

Go Back

OCD Permitting

[NOTIFY] Notification Of Sampling (C-141N) Application

Submission Information

Submission ID:	333662	**Districts:**	Artesia
Operator:	[13837] MACK ENERGY CORP	**Counties:**	Eddy
Description:	MACK ENERGY CORP [13837] , DICKENS 29 FEDERAL #003H , nAB1515240134		
Status:	APPROVED		
Status Date:	04/16/2024		
References (2):	30-015-37220, nAB1515240134		

Forms

This application type does not have attachments.

Questions

Prerequisites

Incident ID (n#)	**nAB1515240134**
Incident Name	**NAB1515240134 DICKENS 29 FEDERAL #003H @ 30-015-37220**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-015-37220] DICKENS 29 FEDERAL #003H**

Location of Release Source

Site Name	**DICKENS 29 FEDERAL #003H**
Date Release Discovered	**02/18/2015**
Surface Owner	**Federal**

Sampling Event General Information

Please answer all the questions in this group.

What is the sampling surface area in square feet	3,000
What is the estimated number of samples that will be gathered	15
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	04/18/2024
Time sampling will commence	08:00 AM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	Sally w/ Vertex 575.361.3561
Please provide any information necessary for navigation to sampling site	32.8940582,-104.1905899

Comments

No comments found for this submission.

Conditions

Summary: *matt buckles (4/16/2024),* Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.

Reasons

No reasons found for this submission.

Go Back

OCD Permitting

[NOTIFY] Notification Of Sampling (C-141N) Application

Submission Information

Submission ID:	333666	**Districts:**	Artesia
Operator:	[13837] MACK ENERGY CORP	**Counties:**	Eddy
Description:	MACK ENERGY CORP [13837] , DICKENS 29 FEDERAL #003H , nAB1515240134		
Status:	APPROVED		
Status Date:	04/16/2024		
References (2):	30-015-37220, nAB1515240134		

Forms

This application type does not have attachments.

Questions

Prerequisites

Incident ID (n#)	**nAB1515240134**
Incident Name	**NAB1515240134 DICKENS 29 FEDERAL #003H @ 30-015-37220**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-015-37220] DICKENS 29 FEDERAL #003H**

Location of Release Source

Site Name	**DICKENS 29 FEDERAL #003H**
Date Release Discovered	**02/18/2015**
Surface Owner	**Federal**

Sampling Event General Information

Please answer all the questions in this group.

What is the sampling surface area in square feet	3,000
What is the estimated number of samples that will be gathered	15
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	04/19/2024
Time sampling will commence	08:00 AM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	Sally w/ Vertex 575.361.3561
Please provide any information necessary for navigation to sampling site	32.8940582,-104.1905899

Comments

No comments found for this submission.

Conditions

Summary: *matt buckles (4/16/2024),* Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.

Reasons

No reasons found for this submission.

Go Back

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carter
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 4/12/2024 7:51:36 AM

JOB DESCRIPTION

Dickens 29 Federal #003H

JOB NUMBER

885-2428-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
4/12/2024 7:51:36 AM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Laboratory Job ID: 885-2428-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-2428-1
Project: Dickens 29 Federal #003H

Job ID: 885-2428-1 Eurofins Albuquerque

Job Narrative
885-2428-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/5/2024 7:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.1°C.

Receipt Exceptions
The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): BS24-02 1' (885-2428-4), BS24-06 1' (885-2428-5) and BS24-07 1' (885-2428-6). The container labels list a depth of 0 to1 foot while the COC lists a depth of one foot. The client was contacted, and the lab was instructed to go with the coc.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: WS24-01 0-1'
Lab Sample ID: 885-2428-1
Date Collected: 04/02/24 09:55
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		04/05/24 13:05	04/09/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/05/24 13:05*	*04/09/24 15:50*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/05/24 13:05	04/09/24 15:50	1
Ethylbenzene	ND		0.046		mg/Kg		04/05/24 13:05	04/09/24 15:50	1
Toluene	ND		0.046		mg/Kg		04/05/24 13:05	04/09/24 15:50	1
Xylenes, Total	ND		0.093		mg/Kg		04/05/24 13:05	04/09/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*39 - 146*	*04/05/24 13:05*	*04/09/24 15:50*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		04/09/24 10:06	04/09/24 14:43	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		04/09/24 10:06	04/09/24 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*93*		*62 - 134*	*04/09/24 10:06*	*04/09/24 14:43*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**250**		5.0		mg/Kg			04/10/24 20:05	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: WS24-02 0-1'
Lab Sample ID: 885-2428-2
Date Collected: 04/02/24 10:05
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/05/24 13:05	04/09/24 16:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/05/24 13:05*	*04/09/24 16:13*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/05/24 13:05	04/09/24 16:13	1
Ethylbenzene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 16:13	1
Toluene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 16:13	1
Xylenes, Total	ND		0.093		mg/Kg		04/05/24 13:05	04/09/24 16:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*39 - 146*	*04/05/24 13:05*	*04/09/24 16:13*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**49**		9.1		mg/Kg		04/09/24 10:06	04/09/24 14:54	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/09/24 10:06	04/09/24 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*04/09/24 10:06*	*04/09/24 14:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**320**		5.0		mg/Kg			04/10/24 20:24	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: WS24-03 0-1'
Lab Sample ID: 885-2428-3
Date Collected: 04/02/24 10:10
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/05/24 13:05	04/09/24 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*15 - 244*	*04/05/24 13:05*	*04/09/24 16:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/05/24 13:05	04/09/24 16:37	1
Ethylbenzene	ND		0.049		mg/Kg		04/05/24 13:05	04/09/24 16:37	1
Toluene	ND		0.049		mg/Kg		04/05/24 13:05	04/09/24 16:37	1
Xylenes, Total	ND		0.098		mg/Kg		04/05/24 13:05	04/09/24 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*39 - 146*	*04/05/24 13:05*	*04/09/24 16:37*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**15**		9.3		mg/Kg		04/09/24 10:06	04/09/24 15:05	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/09/24 10:06	04/09/24 15:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*04/09/24 10:06*	*04/09/24 15:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		5.0		mg/Kg			04/10/24 20:30	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-02 1'
Lab Sample ID: 885-2428-4
Date Collected: 04/02/24 10:30
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/05/24 13:05	04/09/24 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*15 - 244*	*04/05/24 13:05*	*04/09/24 17:24*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 17:24	1
Ethylbenzene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 17:24	1
Toluene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 17:24	1
Xylenes, Total	ND		0.095		mg/Kg		04/05/24 13:05	04/09/24 17:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*39 - 146*	*04/05/24 13:05*	*04/09/24 17:24*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.7		mg/Kg		04/09/24 10:06	04/09/24 15:16	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		04/09/24 10:06	04/09/24 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*04/09/24 10:06*	*04/09/24 15:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**190**		5.0		mg/Kg			04/10/24 20:37	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-06 1'
Lab Sample ID: 885-2428-5
Date Collected: 04/02/24 10:40
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/05/24 13:05	04/09/24 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/05/24 13:05*	*04/09/24 17:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 17:48	1
Ethylbenzene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 17:48	1
Toluene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 17:48	1
Xylenes, Total	ND		0.095		mg/Kg		04/05/24 13:05	04/09/24 17:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*39 - 146*	*04/05/24 13:05*	*04/09/24 17:48*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		04/09/24 10:06	04/09/24 15:27	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/09/24 10:06	04/09/24 15:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*04/09/24 10:06*	*04/09/24 15:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**270**		5.0		mg/Kg			04/10/24 20:43	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-07 1'
Lab Sample ID: 885-2428-6
Date Collected: 04/02/24 10:50
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/05/24 13:05	04/09/24 18:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/05/24 13:05*	*04/09/24 18:11*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 18:11	1
Ethylbenzene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 18:11	1
Toluene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 18:11	1
Xylenes, Total	ND		0.095		mg/Kg		04/05/24 13:05	04/09/24 18:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/05/24 13:05*	*04/09/24 18:11*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		04/09/24 10:06	04/10/24 11:08	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/09/24 10:06	04/10/24 11:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*04/09/24 10:06*	*04/10/24 11:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**220**		5.1		mg/Kg			04/10/24 21:02	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-08 1'
Lab Sample ID: 885-2428-7
Date Collected: 04/02/24 11:00
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/05/24 13:05	04/09/24 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/05/24 13:05*	*04/09/24 18:35*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 18:35	1
Ethylbenzene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 18:35	1
Toluene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 18:35	1
Xylenes, Total	ND		0.097		mg/Kg		04/05/24 13:05	04/09/24 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*39 - 146*	*04/05/24 13:05*	*04/09/24 18:35*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		04/09/24 10:06	04/09/24 15:48	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/09/24 10:06	04/09/24 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*04/09/24 10:06*	*04/09/24 15:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**240**		5.0		mg/Kg			04/10/24 21:09	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-09 1'
Lab Sample ID: 885-2428-8
Date Collected: 04/03/24 08:30
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/05/24 13:05	04/09/24 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/05/24 13:05*	*04/09/24 18:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 18:58	1
Ethylbenzene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 18:58	1
Toluene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 18:58	1
Xylenes, Total	ND		0.096		mg/Kg		04/05/24 13:05	04/09/24 18:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*39 - 146*	*04/05/24 13:05*	*04/09/24 18:58*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		04/09/24 10:06	04/09/24 15:59	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/09/24 10:06	04/09/24 15:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*04/09/24 10:06*	*04/09/24 15:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		5.0		mg/Kg			04/10/24 21:15	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-10 1'
Lab Sample ID: 885-2428-9
Date Collected: 04/03/24 08:40
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/05/24 13:05	04/09/24 19:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/05/24 13:05*	*04/09/24 19:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 19:22	1
Ethylbenzene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 19:22	1
Toluene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 19:22	1
Xylenes, Total	ND		0.095		mg/Kg		04/05/24 13:05	04/09/24 19:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/05/24 13:05*	*04/09/24 19:22*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		04/09/24 10:06	04/09/24 16:10	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/09/24 10:06	04/09/24 16:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*04/09/24 10:06*	*04/09/24 16:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**340**		5.0		mg/Kg			04/10/24 21:21	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-11 1'
Lab Sample ID: 885-2428-10
Date Collected: 04/03/24 08:50
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/05/24 13:05	04/09/24 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/05/24 13:05*	*04/09/24 19:45*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 19:45	1
Ethylbenzene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 19:45	1
Toluene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 19:45	1
Xylenes, Total	ND		0.095		mg/Kg		04/05/24 13:05	04/09/24 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/05/24 13:05*	*04/09/24 19:45*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		04/09/24 10:06	04/09/24 16:21	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/09/24 10:06	04/09/24 16:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*04/09/24 10:06*	*04/09/24 16:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**240**		5.0		mg/Kg			04/10/24 21:28	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-12 1'
Lab Sample ID: 885-2428-11
Date Collected: 04/03/24 09:00
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/05/24 13:05	04/09/24 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/05/24 13:05*	*04/09/24 20:08*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 20:08	1
Ethylbenzene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 20:08	1
Toluene	ND		0.047		mg/Kg		04/05/24 13:05	04/09/24 20:08	1
Xylenes, Total	ND		0.094		mg/Kg		04/05/24 13:05	04/09/24 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/05/24 13:05*	*04/09/24 20:08*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		04/09/24 10:06	04/09/24 16:32	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/09/24 10:06	04/09/24 16:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*04/09/24 10:06*	*04/09/24 16:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		5.1		mg/Kg			04/10/24 21:34	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-13 1'
Lab Sample ID: 885-2428-12
Date Collected: 04/03/24 09:10
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/05/24 13:05	04/09/24 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/05/24 13:05*	*04/09/24 20:32*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/05/24 13:05	04/09/24 20:32	1
Ethylbenzene	ND		0.050		mg/Kg		04/05/24 13:05	04/09/24 20:32	1
Toluene	ND		0.050		mg/Kg		04/05/24 13:05	04/09/24 20:32	1
Xylenes, Total	ND		0.10		mg/Kg		04/05/24 13:05	04/09/24 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/05/24 13:05*	*04/09/24 20:32*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		04/09/24 14:19	04/10/24 12:19	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/09/24 14:19	04/10/24 12:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*82*		*62 - 134*	*04/09/24 14:19*	*04/10/24 12:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**250**		5.0		mg/Kg			04/10/24 21:53	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-14 1'
Lab Sample ID: 885-2428-13
Date Collected: 04/03/24 09:20
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/05/24 13:05	04/09/24 20:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/05/24 13:05*	*04/09/24 20:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/05/24 13:05	04/09/24 20:55	1
Ethylbenzene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 20:55	1
Toluene	ND		0.048		mg/Kg		04/05/24 13:05	04/09/24 20:55	1
Xylenes, Total	ND		0.095		mg/Kg		04/05/24 13:05	04/09/24 20:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/05/24 13:05*	*04/09/24 20:55*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		04/09/24 14:19	04/10/24 12:43	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/09/24 14:19	04/10/24 12:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*04/09/24 14:19*	*04/10/24 12:43*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**360**		5.0		mg/Kg			04/10/24 21:59	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-15 1'
Lab Sample ID: 885-2428-14
Date Collected: 04/03/24 09:30
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/08/24 15:32	04/10/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/08/24 15:32*	*04/10/24 16:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/08/24 15:32	04/10/24 16:01	1
Ethylbenzene	ND		0.049		mg/Kg		04/08/24 15:32	04/10/24 16:01	1
Toluene	ND		0.049		mg/Kg		04/08/24 15:32	04/10/24 16:01	1
Xylenes, Total	ND		0.098		mg/Kg		04/08/24 15:32	04/10/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/08/24 15:32*	*04/10/24 16:01*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		04/09/24 13:09	04/10/24 11:48	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/09/24 13:09	04/10/24 11:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*04/09/24 13:09*	*04/10/24 11:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**500**		5.0		mg/Kg			04/10/24 22:18	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-19 1'
Lab Sample ID: 885-2428-15
Date Collected: 04/03/24 10:30
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/08/24 15:32	04/10/24 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/08/24 15:32*	*04/10/24 16:25*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/08/24 15:32	04/10/24 16:25	1
Ethylbenzene	ND		0.047		mg/Kg		04/08/24 15:32	04/10/24 16:25	1
Toluene	ND		0.047		mg/Kg		04/08/24 15:32	04/10/24 16:25	1
Xylenes, Total	ND		0.094		mg/Kg		04/08/24 15:32	04/10/24 16:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*39 - 146*	*04/08/24 15:32*	*04/10/24 16:25*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		04/09/24 13:09	04/10/24 12:24	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/09/24 13:09	04/10/24 12:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*04/09/24 13:09*	*04/10/24 12:24*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**460**		5.0		mg/Kg			04/10/24 22:25	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-20 1'
Lab Sample ID: 885-2428-16
Date Collected: 04/03/24 10:40
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		04/08/24 15:32	04/10/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/08/24 15:32*	*04/10/24 16:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/08/24 15:32	04/10/24 16:48	1
Ethylbenzene	ND		0.046		mg/Kg		04/08/24 15:32	04/10/24 16:48	1
Toluene	ND		0.046		mg/Kg		04/08/24 15:32	04/10/24 16:48	1
Xylenes, Total	ND		0.092		mg/Kg		04/08/24 15:32	04/10/24 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/08/24 15:32*	*04/10/24 16:48*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.6		mg/Kg		04/09/24 13:09	04/10/24 12:37	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		04/09/24 13:09	04/10/24 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*04/09/24 13:09*	*04/10/24 12:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**470**		5.0		mg/Kg			04/10/24 22:31	1

Client Sample Results

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-25 1'
Lab Sample ID: 885-2428-17
Date Collected: 04/03/24 11:00
Matrix: Solid
Date Received: 04/05/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/08/24 15:32	04/10/24 17:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/08/24 15:32*	*04/10/24 17:11*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/08/24 15:32	04/10/24 17:11	1
Ethylbenzene	ND		0.050		mg/Kg		04/08/24 15:32	04/10/24 17:11	1
Toluene	ND		0.050		mg/Kg		04/08/24 15:32	04/10/24 17:11	1
Xylenes, Total	ND		0.099		mg/Kg		04/08/24 15:32	04/10/24 17:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/08/24 15:32*	*04/10/24 17:11*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.5		mg/Kg		04/09/24 13:09	04/10/24 12:49	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		04/09/24 13:09	04/10/24 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*04/09/24 13:09*	*04/10/24 12:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		5.0		mg/Kg			04/10/24 22:37	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-2842/1-A
Matrix: Solid
Analysis Batch: 3025

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2842

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/05/24 13:05	04/09/24 11:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/05/24 13:05*	*04/09/24 11:07*	*1*

Lab Sample ID: LCS 885-2842/2-A
Matrix: Solid
Analysis Batch: 3025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2842

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	27.5		mg/Kg		110	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*212*		*15 - 244*

Lab Sample ID: MB 885-2924/1-A
Matrix: Solid
Analysis Batch: 3090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2924

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/08/24 15:32	04/10/24 11:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/08/24 15:32*	*04/10/24 11:19*	*1*

Lab Sample ID: LCS 885-2924/2-A
Matrix: Solid
Analysis Batch: 3090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2924

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	25.5		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*		*15 - 244*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-2842/1-A
Matrix: Solid
Analysis Batch: 3027

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2842

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/05/24 13:05	04/09/24 11:07	1
Ethylbenzene	ND		0.050		mg/Kg		04/05/24 13:05	04/09/24 11:07	1
Toluene	ND		0.050		mg/Kg		04/05/24 13:05	04/09/24 11:07	1
Xylenes, Total	ND		0.10		mg/Kg		04/05/24 13:05	04/09/24 11:07	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-2842/1-A
Matrix: Solid
Analysis Batch: 3027

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2842

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		39 - 146	04/05/24 13:05	04/09/24 11:07	1

Lab Sample ID: LCS 885-2842/3-A
Matrix: Solid
Analysis Batch: 3027

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2842

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.786		mg/Kg		79	70 - 130
Ethylbenzene	1.00	0.805		mg/Kg		81	70 - 130
m,p-Xylene	2.00	1.64		mg/Kg		82	70 - 130
o-Xylene	1.00	0.801		mg/Kg		80	70 - 130
Toluene	1.00	0.801		mg/Kg		80	70 - 130
Xylenes, Total	3.00	2.44		mg/Kg		81	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	84		39 - 146

Lab Sample ID: MB 885-2924/1-A
Matrix: Solid
Analysis Batch: 3091

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2924

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		04/08/24 15:32	04/10/24 11:19	1
Ethylbenzene	ND		0.050	mg/Kg		04/08/24 15:32	04/10/24 11:19	1
Toluene	ND		0.050	mg/Kg		04/08/24 15:32	04/10/24 11:19	1
Xylenes, Total	ND		0.10	mg/Kg		04/08/24 15:32	04/10/24 11:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		39 - 146	04/08/24 15:32	04/10/24 11:19	1

Lab Sample ID: LCS 885-2924/3-A
Matrix: Solid
Analysis Batch: 3091

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2924

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.786		mg/Kg		79	70 - 130
Ethylbenzene	1.00	0.804		mg/Kg		80	70 - 130
m,p-Xylene	2.00	1.64		mg/Kg		82	70 - 130
o-Xylene	1.00	0.797		mg/Kg		80	70 - 130
Toluene	1.00	0.795		mg/Kg		80	70 - 130
Xylenes, Total	3.00	2.44		mg/Kg		81	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		39 - 146

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-2948/1-A
Matrix: Solid
Analysis Batch: 2961

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2948

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/09/24 10:06	04/09/24 12:35	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/09/24 10:06	04/09/24 12:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*04/09/24 10:06*	*04/09/24 12:35*	*1*

Lab Sample ID: LCS 885-2948/2-A
Matrix: Solid
Analysis Batch: 2961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2948

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	43.8		mg/Kg		88	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*

Lab Sample ID: 885-2428-11 MS
Matrix: Solid
Analysis Batch: 2961

Client Sample ID: BS24-12 1'
Prep Type: Total/NA
Prep Batch: 2948

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		47.1	46.1		mg/Kg		98	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*

Lab Sample ID: 885-2428-11 MSD
Matrix: Solid
Analysis Batch: 2961

Client Sample ID: BS24-12 1'
Prep Type: Total/NA
Prep Batch: 2948

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		46.7	43.1		mg/Kg		92	44 - 136	7	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*77*		*62 - 134*

Lab Sample ID: MB 885-2975/1-A
Matrix: Solid
Analysis Batch: 3129

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2975

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/09/24 13:09	04/10/24 11:23	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/09/24 13:09	04/10/24 11:23	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

Method: 8015D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-2975/1-A
Matrix: Solid
Analysis Batch: 3129

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2975

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	117		62 - 134	04/09/24 13:09	04/10/24 11:23	1

Lab Sample ID: LCS 885-2975/2-A
Matrix: Solid
Analysis Batch: 3129

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2975

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	53.5		mg/Kg		107	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	124		62 - 134

Lab Sample ID: 885-2428-14 MS
Matrix: Solid
Analysis Batch: 3129

Client Sample ID: BS24-15 1'
Prep Type: Total/NA
Prep Batch: 2975

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		43.7	32.8		mg/Kg		75	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	92		62 - 134

Lab Sample ID: 885-2428-14 MSD
Matrix: Solid
Analysis Batch: 3129

Client Sample ID: BS24-15 1'
Prep Type: Total/NA
Prep Batch: 2975

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		46.9	36.0		mg/Kg		77	44 - 136	9	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	90		62 - 134

Lab Sample ID: MB 885-2981/1-A
Matrix: Solid
Analysis Batch: 3059

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2981

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/09/24 14:19	04/10/24 11:32	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/09/24 14:19	04/10/24 11:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	93		62 - 134	04/09/24 14:19	04/10/24 11:32	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

Method: 8015D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 885-2981/2-A
Matrix: Solid
Analysis Batch: 3059

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2981

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	47.8		mg/Kg		96	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*

Lab Sample ID: 885-2428-13 MS
Matrix: Solid
Analysis Batch: 3059

Client Sample ID: BS24-14 1'
Prep Type: Total/NA
Prep Batch: 2981

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		46.0	43.4		mg/Kg		94	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*

Lab Sample ID: 885-2428-13 MSD
Matrix: Solid
Analysis Batch: 3059

Client Sample ID: BS24-14 1'
Prep Type: Total/NA
Prep Batch: 2981

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		45.5	37.6		mg/Kg		83	44 - 136	14	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*74*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-77836/1-A
Matrix: Solid
Analysis Batch: 77865

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			04/10/24 19:46	1

Lab Sample ID: LCS 880-77836/2-A
Matrix: Solid
Analysis Batch: 77865

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	258		mg/Kg		103	90 - 110		

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-77836/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 77865

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	257		mg/Kg		103	90 - 110	1	20

Lab Sample ID: 885-2428-1 MS — **Client Sample ID: WS24-01 0-1'**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 77865

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250		249	492		mg/Kg		97	90 - 110

Lab Sample ID: 885-2428-1 MSD — **Client Sample ID: WS24-01 0-1'**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 77865

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250		249	494		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 885-2428-11 MS — **Client Sample ID: BS24-12 1'**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 77865

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	150		253	382		mg/Kg		92	90 - 110

Lab Sample ID: 885-2428-11 MSD — **Client Sample ID: BS24-12 1'**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 77865

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	150		253	388		mg/Kg		95	90 - 110	2	20

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

GC VOA

Prep Batch: 2842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Total/NA	Solid	5030C	
885-2428-2	WS24-02 0-1'	Total/NA	Solid	5030C	
885-2428-3	WS24-03 0-1'	Total/NA	Solid	5030C	
885-2428-4	BS24-02 1'	Total/NA	Solid	5030C	
885-2428-5	BS24-06 1'	Total/NA	Solid	5030C	
885-2428-6	BS24-07 1'	Total/NA	Solid	5030C	
885-2428-7	BS24-08 1'	Total/NA	Solid	5030C	
885-2428-8	BS24-09 1'	Total/NA	Solid	5030C	
885-2428-9	BS24-10 1'	Total/NA	Solid	5030C	
885-2428-10	BS24-11 1'	Total/NA	Solid	5030C	
885-2428-11	BS24-12 1'	Total/NA	Solid	5030C	
885-2428-12	BS24-13 1'	Total/NA	Solid	5030C	
885-2428-13	BS24-14 1'	Total/NA	Solid	5030C	
MB 885-2842/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-2842/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-2842/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 2924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-14	BS24-15 1'	Total/NA	Solid	5030C	
885-2428-15	BS24-19 1'	Total/NA	Solid	5030C	
885-2428-16	BS24-20 1'	Total/NA	Solid	5030C	
885-2428-17	BS24-25 1'	Total/NA	Solid	5030C	
MB 885-2924/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-2924/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-2924/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 3025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Total/NA	Solid	8015D	2842
885-2428-2	WS24-02 0-1'	Total/NA	Solid	8015D	2842
885-2428-3	WS24-03 0-1'	Total/NA	Solid	8015D	2842
885-2428-4	BS24-02 1'	Total/NA	Solid	8015D	2842
885-2428-5	BS24-06 1'	Total/NA	Solid	8015D	2842
885-2428-6	BS24-07 1'	Total/NA	Solid	8015D	2842
885-2428-7	BS24-08 1'	Total/NA	Solid	8015D	2842
885-2428-8	BS24-09 1'	Total/NA	Solid	8015D	2842
885-2428-9	BS24-10 1'	Total/NA	Solid	8015D	2842
885-2428-10	BS24-11 1'	Total/NA	Solid	8015D	2842
885-2428-11	BS24-12 1'	Total/NA	Solid	8015D	2842
885-2428-12	BS24-13 1'	Total/NA	Solid	8015D	2842
885-2428-13	BS24-14 1'	Total/NA	Solid	8015D	2842
MB 885-2842/1-A	Method Blank	Total/NA	Solid	8015D	2842
LCS 885-2842/2-A	Lab Control Sample	Total/NA	Solid	8015D	2842

Analysis Batch: 3027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Total/NA	Solid	8021B	2842
885-2428-2	WS24-02 0-1'	Total/NA	Solid	8021B	2842
885-2428-3	WS24-03 0-1'	Total/NA	Solid	8021B	2842
885-2428-4	BS24-02 1'	Total/NA	Solid	8021B	2842

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

GC VOA (Continued)

Analysis Batch: 3027 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-5	BS24-06 1'	Total/NA	Solid	8021B	2842
885-2428-6	BS24-07 1'	Total/NA	Solid	8021B	2842
885-2428-7	BS24-08 1'	Total/NA	Solid	8021B	2842
885-2428-8	BS24-09 1'	Total/NA	Solid	8021B	2842
885-2428-9	BS24-10 1'	Total/NA	Solid	8021B	2842
885-2428-10	BS24-11 1'	Total/NA	Solid	8021B	2842
885-2428-11	BS24-12 1'	Total/NA	Solid	8021B	2842
885-2428-12	BS24-13 1'	Total/NA	Solid	8021B	2842
885-2428-13	BS24-14 1'	Total/NA	Solid	8021B	2842
MB 885-2842/1-A	Method Blank	Total/NA	Solid	8021B	2842
LCS 885-2842/3-A	Lab Control Sample	Total/NA	Solid	8021B	2842

Analysis Batch: 3090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-14	BS24-15 1'	Total/NA	Solid	8015D	2924
885-2428-15	BS24-19 1'	Total/NA	Solid	8015D	2924
885-2428-16	BS24-20 1'	Total/NA	Solid	8015D	2924
885-2428-17	BS24-25 1'	Total/NA	Solid	8015D	2924
MB 885-2924/1-A	Method Blank	Total/NA	Solid	8015D	2924
LCS 885-2924/2-A	Lab Control Sample	Total/NA	Solid	8015D	2924

Analysis Batch: 3091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-14	BS24-15 1'	Total/NA	Solid	8021B	2924
885-2428-15	BS24-19 1'	Total/NA	Solid	8021B	2924
885-2428-16	BS24-20 1'	Total/NA	Solid	8021B	2924
885-2428-17	BS24-25 1'	Total/NA	Solid	8021B	2924
MB 885-2924/1-A	Method Blank	Total/NA	Solid	8021B	2924
LCS 885-2924/3-A	Lab Control Sample	Total/NA	Solid	8021B	2924

GC Semi VOA

Prep Batch: 2948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Total/NA	Solid	SHAKE	
885-2428-2	WS24-02 0-1'	Total/NA	Solid	SHAKE	
885-2428-3	WS24-03 0-1'	Total/NA	Solid	SHAKE	
885-2428-4	BS24-02 1'	Total/NA	Solid	SHAKE	
885-2428-5	BS24-06 1'	Total/NA	Solid	SHAKE	
885-2428-6	BS24-07 1'	Total/NA	Solid	SHAKE	
885-2428-7	BS24-08 1'	Total/NA	Solid	SHAKE	
885-2428-8	BS24-09 1'	Total/NA	Solid	SHAKE	
885-2428-9	BS24-10 1'	Total/NA	Solid	SHAKE	
885-2428-10	BS24-11 1'	Total/NA	Solid	SHAKE	
885-2428-11	BS24-12 1'	Total/NA	Solid	SHAKE	
MB 885-2948/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-2948/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-2428-11 MS	BS24-12 1'	Total/NA	Solid	SHAKE	
885-2428-11 MSD	BS24-12 1'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

GC Semi VOA

Analysis Batch: 2961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Total/NA	Solid	8015D	2948
885-2428-2	WS24-02 0-1'	Total/NA	Solid	8015D	2948
885-2428-3	WS24-03 0-1'	Total/NA	Solid	8015D	2948
885-2428-4	BS24-02 1'	Total/NA	Solid	8015D	2948
885-2428-5	BS24-06 1'	Total/NA	Solid	8015D	2948
885-2428-7	BS24-08 1'	Total/NA	Solid	8015D	2948
885-2428-8	BS24-09 1'	Total/NA	Solid	8015D	2948
885-2428-9	BS24-10 1'	Total/NA	Solid	8015D	2948
885-2428-10	BS24-11 1'	Total/NA	Solid	8015D	2948
885-2428-11	BS24-12 1'	Total/NA	Solid	8015D	2948
MB 885-2948/1-A	Method Blank	Total/NA	Solid	8015D	2948
LCS 885-2948/2-A	Lab Control Sample	Total/NA	Solid	8015D	2948
885-2428-11 MS	BS24-12 1'	Total/NA	Solid	8015D	2948
885-2428-11 MSD	BS24-12 1'	Total/NA	Solid	8015D	2948

Prep Batch: 2975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-14	BS24-15 1'	Total/NA	Solid	SHAKE	
885-2428-15	BS24-19 1'	Total/NA	Solid	SHAKE	
885-2428-16	BS24-20 1'	Total/NA	Solid	SHAKE	
885-2428-17	BS24-25 1'	Total/NA	Solid	SHAKE	
MB 885-2975/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-2975/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-2428-14 MS	BS24-15 1'	Total/NA	Solid	SHAKE	
885-2428-14 MSD	BS24-15 1'	Total/NA	Solid	SHAKE	

Prep Batch: 2981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-12	BS24-13 1'	Total/NA	Solid	SHAKE	
885-2428-13	BS24-14 1'	Total/NA	Solid	SHAKE	
MB 885-2981/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-2981/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-2428-13 MS	BS24-14 1'	Total/NA	Solid	SHAKE	
885-2428-13 MSD	BS24-14 1'	Total/NA	Solid	SHAKE	

Analysis Batch: 3059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-6	BS24-07 1'	Total/NA	Solid	8015D	2948
885-2428-12	BS24-13 1'	Total/NA	Solid	8015D	2981
885-2428-13	BS24-14 1'	Total/NA	Solid	8015D	2981
MB 885-2981/1-A	Method Blank	Total/NA	Solid	8015D	2981
LCS 885-2981/2-A	Lab Control Sample	Total/NA	Solid	8015D	2981
885-2428-13 MS	BS24-14 1'	Total/NA	Solid	8015D	2981
885-2428-13 MSD	BS24-14 1'	Total/NA	Solid	8015D	2981

Analysis Batch: 3129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-14	BS24-15 1'	Total/NA	Solid	8015D	2975
885-2428-15	BS24-19 1'	Total/NA	Solid	8015D	2975
885-2428-16	BS24-20 1'	Total/NA	Solid	8015D	2975
885-2428-17	BS24-25 1'	Total/NA	Solid	8015D	2975

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

GC Semi VOA (Continued)

Analysis Batch: 3129 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-2975/1-A	Method Blank	Total/NA	Solid	8015D	2975
LCS 885-2975/2-A	Lab Control Sample	Total/NA	Solid	8015D	2975
885-2428-14 MS	BS24-15 1'	Total/NA	Solid	8015D	2975
885-2428-14 MSD	BS24-15 1'	Total/NA	Solid	8015D	2975

HPLC/IC

Leach Batch: 77836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Soluble	Solid	DI Leach	
885-2428-2	WS24-02 0-1'	Soluble	Solid	DI Leach	
885-2428-3	WS24-03 0-1'	Soluble	Solid	DI Leach	
885-2428-4	BS24-02 1'	Soluble	Solid	DI Leach	
885-2428-5	BS24-06 1'	Soluble	Solid	DI Leach	
885-2428-6	BS24-07 1'	Soluble	Solid	DI Leach	
885-2428-7	BS24-08 1'	Soluble	Solid	DI Leach	
885-2428-8	BS24-09 1'	Soluble	Solid	DI Leach	
885-2428-9	BS24-10 1'	Soluble	Solid	DI Leach	
885-2428-10	BS24-11 1'	Soluble	Solid	DI Leach	
885-2428-11	BS24-12 1'	Soluble	Solid	DI Leach	
885-2428-12	BS24-13 1'	Soluble	Solid	DI Leach	
885-2428-13	BS24-14 1'	Soluble	Solid	DI Leach	
885-2428-14	BS24-15 1'	Soluble	Solid	DI Leach	
885-2428-15	BS24-19 1'	Soluble	Solid	DI Leach	
885-2428-16	BS24-20 1'	Soluble	Solid	DI Leach	
885-2428-17	BS24-25 1'	Soluble	Solid	DI Leach	
MB 880-77836/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-77836/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-77836/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
885-2428-1 MS	WS24-01 0-1'	Soluble	Solid	DI Leach	
885-2428-1 MSD	WS24-01 0-1'	Soluble	Solid	DI Leach	
885-2428-11 MS	BS24-12 1'	Soluble	Solid	DI Leach	
885-2428-11 MSD	BS24-12 1'	Soluble	Solid	DI Leach	

Analysis Batch: 77865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-1	WS24-01 0-1'	Soluble	Solid	300.0	77836
885-2428-2	WS24-02 0-1'	Soluble	Solid	300.0	77836
885-2428-3	WS24-03 0-1'	Soluble	Solid	300.0	77836
885-2428-4	BS24-02 1'	Soluble	Solid	300.0	77836
885-2428-5	BS24-06 1'	Soluble	Solid	300.0	77836
885-2428-6	BS24-07 1'	Soluble	Solid	300.0	77836
885-2428-7	BS24-08 1'	Soluble	Solid	300.0	77836
885-2428-8	BS24-09 1'	Soluble	Solid	300.0	77836
885-2428-9	BS24-10 1'	Soluble	Solid	300.0	77836
885-2428-10	BS24-11 1'	Soluble	Solid	300.0	77836
885-2428-11	BS24-12 1'	Soluble	Solid	300.0	77836
885-2428-12	BS24-13 1'	Soluble	Solid	300.0	77836
885-2428-13	BS24-14 1'	Soluble	Solid	300.0	77836
885-2428-14	BS24-15 1'	Soluble	Solid	300.0	77836
885-2428-15	BS24-19 1'	Soluble	Solid	300.0	77836

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-2428-1

HPLC/IC (Continued)

Analysis Batch: 77865 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2428-16	BS24-20 1'	Soluble	Solid	300.0	77836
885-2428-17	BS24-25 1'	Soluble	Solid	300.0	77836
MB 880-77836/1-A	Method Blank	Soluble	Solid	300.0	77836
LCS 880-77836/2-A	Lab Control Sample	Soluble	Solid	300.0	77836
LCSD 880-77836/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	77836
885-2428-1 MS	WS24-01 0-1'	Soluble	Solid	300.0	77836
885-2428-1 MSD	WS24-01 0-1'	Soluble	Solid	300.0	77836
885-2428-11 MS	BS24-12 1'	Soluble	Solid	300.0	77836
885-2428-11 MSD	BS24-12 1'	Soluble	Solid	300.0	77836

Lab Chronicle

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: WS24-01 0-1'
Lab Sample ID: 885-2428-1
Date Collected: 04/02/24 09:55
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 15:50
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 15:50
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 14:43
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 20:05

Client Sample ID: WS24-02 0-1'
Lab Sample ID: 885-2428-2
Date Collected: 04/02/24 10:05
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 16:13
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 16:13
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 14:54
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 20:24

Client Sample ID: WS24-03 0-1'
Lab Sample ID: 885-2428-3
Date Collected: 04/02/24 10:10
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 16:37
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 16:37
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 15:05
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 20:30

Client Sample ID: BS24-02 1'
Lab Sample ID: 885-2428-4
Date Collected: 04/02/24 10:30
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 17:24

Lab Chronicle

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-02 1'
Lab Sample ID: 885-2428-4
Date Collected: 04/02/24 10:30
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 17:24
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 15:16
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 20:37

Client Sample ID: BS24-06 1'
Lab Sample ID: 885-2428-5
Date Collected: 04/02/24 10:40
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 17:48
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 17:48
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 15:27
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 20:43

Client Sample ID: BS24-07 1'
Lab Sample ID: 885-2428-6
Date Collected: 04/02/24 10:50
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 18:11
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 18:11
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	3059	JU	EET ALB	04/10/24 11:08
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:02

Client Sample ID: BS24-08 1'
Lab Sample ID: 885-2428-7
Date Collected: 04/02/24 11:00
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 18:35
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 18:35

Lab Chronicle

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-08 1'
Lab Sample ID: 885-2428-7
Date Collected: 04/02/24 11:00
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 15:48
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:09

Client Sample ID: BS24-09 1'
Lab Sample ID: 885-2428-8
Date Collected: 04/03/24 08:30
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 18:58
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 18:58
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 15:59
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:15

Client Sample ID: BS24-10 1'
Lab Sample ID: 885-2428-9
Date Collected: 04/03/24 08:40
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 19:22
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 19:22
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 16:10
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:21

Client Sample ID: BS24-11 1'
Lab Sample ID: 885-2428-10
Date Collected: 04/03/24 08:50
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 19:45
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 19:45
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 16:21

Lab Chronicle

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-11 1'
Lab Sample ID: 885-2428-10
Date Collected: 04/03/24 08:50
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:28

Client Sample ID: BS24-12 1'
Lab Sample ID: 885-2428-11
Date Collected: 04/03/24 09:00
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 20:08
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 20:08
Total/NA	Prep	SHAKE			2948	JU	EET ALB	04/09/24 10:06
Total/NA	Analysis	8015D		1	2961	PD	EET ALB	04/09/24 16:32
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:34

Client Sample ID: BS24-13 1'
Lab Sample ID: 885-2428-12
Date Collected: 04/03/24 09:10
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 20:32
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 20:32
Total/NA	Prep	SHAKE			2981	JU	EET ALB	04/09/24 14:19
Total/NA	Analysis	8015D		1	3059	JU	EET ALB	04/10/24 12:19
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:53

Client Sample ID: BS24-14 1'
Lab Sample ID: 885-2428-13
Date Collected: 04/03/24 09:20
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8015D		1	3025	JP	EET ALB	04/09/24 20:55
Total/NA	Prep	5030C			2842	JP	EET ALB	04/05/24 13:05
Total/NA	Analysis	8021B		1	3027	JP	EET ALB	04/09/24 20:55
Total/NA	Prep	SHAKE			2981	JU	EET ALB	04/09/24 14:19
Total/NA	Analysis	8015D		1	3059	JU	EET ALB	04/10/24 12:43
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 21:59

Lab Chronicle

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-15 1'
Lab Sample ID: 885-2428-14
Date Collected: 04/03/24 09:30
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8015D		1	3090	JP	EET ALB	04/10/24 16:01
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8021B		1	3091	JP	EET ALB	04/10/24 16:01
Total/NA	Prep	SHAKE			2975	PD	EET ALB	04/09/24 13:09
Total/NA	Analysis	8015D		1	3129	JU	EET ALB	04/10/24 11:48
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 22:18

Client Sample ID: BS24-19 1'
Lab Sample ID: 885-2428-15
Date Collected: 04/03/24 10:30
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8015D		1	3090	JP	EET ALB	04/10/24 16:25
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8021B		1	3091	JP	EET ALB	04/10/24 16:25
Total/NA	Prep	SHAKE			2975	PD	EET ALB	04/09/24 13:09
Total/NA	Analysis	8015D		1	3129	JU	EET ALB	04/10/24 12:24
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 22:25

Client Sample ID: BS24-20 1'
Lab Sample ID: 885-2428-16
Date Collected: 04/03/24 10:40
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8015D		1	3090	JP	EET ALB	04/10/24 16:48
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8021B		1	3091	JP	EET ALB	04/10/24 16:48
Total/NA	Prep	SHAKE			2975	PD	EET ALB	04/09/24 13:09
Total/NA	Analysis	8015D		1	3129	JU	EET ALB	04/10/24 12:37
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 22:31

Client Sample ID: BS24-25 1'
Lab Sample ID: 885-2428-17
Date Collected: 04/03/24 11:00
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8015D		1	3090	JP	EET ALB	04/10/24 17:11

Lab Chronicle

Client: Vertex
Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-25 1'
Lab Sample ID: 885-2428-17
Date Collected: 04/03/24 11:00
Matrix: Solid
Date Received: 04/05/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2924	JP	EET ALB	04/08/24 15:32
Total/NA	Analysis	8021B		1	3091	JP	EET ALB	04/10/24 17:11
Total/NA	Prep	SHAKE			2975	PD	EET ALB	04/09/24 13:09
Total/NA	Analysis	8015D		1	3129	JU	EET ALB	04/10/24 12:49
Soluble	Leach	DI Leach			77836	SA	EET MID	04/10/24 14:12
Soluble	Analysis	300.0		1	77865	SMC	EET MID	04/10/24 22:37

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Vertex Job ID: 885-2428-1
Project/Site: Dickens 29 Federal #003H

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Laboratory: Eurofins Midland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

Chain-of-Custody Record

Client: Mack Energy / Vertex

Mailing Address: On File

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 (5-Day)

Project Name: Dickens 29 Federal #003H

Project #: 23-04710

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 1 (Monty)

Cooler Temp (including CF): 1.0+0.1=1.1 (°C)

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

2418

885-2428 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	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)
4-2-24	0955	soil	WS24-01 0-1'	4oz	ICE	-1										
	1005		WS24-02 0-1'			-2										
	1010		WS24-03 0-1'			-3										
	1030		BS24-02 1'			-4										
	1040		BS24-06 1'			-5										
	1050		BS24-07 1'			-6										
	1100		BS24-08 1'			-7										
4-3-24	0830		BS24-09 1'			-8										
	0840		BS24-10 1'			-9										
	0850		BS24-11 1'			-10										
	0900		BS24-12 1'			-11										
	0910		BS24-13 1'			-12										

Date	Time	Relinquished by	Received by	Via	Date	Time
					4/4/24	930
4/4/24	1910			courier	4/5/24	7:55

Remarks: CC: scarttar@vertex.ca

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

Chain-of-Custody Record

Client: Mack Energy / Vertex

Mailing Address: On File

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: Dickens 29 Federal #003H

Project #: 23-04710

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 1.0 + 0.1 = 1.1 (°C) Mo-ty

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.	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)
4-3-24	0920	Soil	BS24-14 1'	4 oz	ICE	-13										
	0930		BS24-15 1'			-14										
	1030		BS24-19 1'			-15										
	1040		BS24-20 1'			-16										
↓	1100	↓	BS24-25 1'	↓	↓	-17	↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
					4/4/24	930
4/4/24	1900					

Date	Time	Relinquished by	Received by	Via	Date	Time
					4/5/24	7:55

Remarks: CC: SCarttar@Vertex.ca

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

Login Sample Receipt Checklist

Client: Vertex

Job Number: 885-2428-1
SDG Number:

Login Number: 2428
List Number: 1
Creator: McQuiston, Steven

List Source: Eurofins Albuquerque

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

Login Sample Receipt Checklist

Client: Vertex

Job Number: 885-2428-1
SDG Number:

Login Number: 2428
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 04/10/24 01:43 PM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 4/26/2024 4:24:52 PM

JOB DESCRIPTION

Dickens 29 Federal #003H

JOB NUMBER

885-3166-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
4/26/2024 4:24:52 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Laboratory Job ID: 885-3166-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-3166-1
Project/Site: Dickens 29 Federal #003H

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-3166-1
Project: Dickens 29 Federal #003H

Job ID: 885-3166-1 Eurofins Albuquerque

Job Narrative
885-3166-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/20/2024 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.1°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: WS24-04 0-1'
Date Collected: 04/18/24 10:00
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-1
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/22/24 12:32	04/23/24 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*15 - 244*	*04/22/24 12:32*	*04/23/24 20:06*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/22/24 12:32	04/23/24 20:06	1
Ethylbenzene	ND		0.047		mg/Kg		04/22/24 12:32	04/23/24 20:06	1
Toluene	ND		0.047		mg/Kg		04/22/24 12:32	04/23/24 20:06	1
Xylenes, Total	ND		0.093		mg/Kg		04/22/24 12:32	04/23/24 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*39 - 146*	*04/22/24 12:32*	*04/23/24 20:06*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.4		mg/Kg		04/23/24 13:42	04/24/24 20:57	1
Motor Oil Range Organics [C28-C40]	ND		42		mg/Kg		04/23/24 13:42	04/24/24 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*124*		*62 - 134*	*04/23/24 13:42*	*04/24/24 20:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		60		mg/Kg		04/23/24 16:44	04/24/24 10:01	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: WS24-06 1-3.5'
Date Collected: 04/18/24 12:50
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-2
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/22/24 12:32	04/23/24 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*15 - 244*	*04/22/24 12:32*	*04/23/24 21:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/23/24 21:20	1
Ethylbenzene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 21:20	1
Toluene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 21:20	1
Xylenes, Total	ND		0.097		mg/Kg		04/22/24 12:32	04/23/24 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*39 - 146*	*04/22/24 12:32*	*04/23/24 21:20*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		04/23/24 13:42	04/24/24 21:08	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/23/24 13:42	04/24/24 21:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*71*		*62 - 134*	*04/23/24 13:42*	*04/24/24 21:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		04/23/24 16:44	04/24/24 10:14	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: WS24-07 0-2.5'
Date Collected: 04/18/24 12:05
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-3
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/22/24 12:32	04/23/24 22:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*15 - 244*	*04/22/24 12:32*	*04/23/24 22:35*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/23/24 22:35	1
Ethylbenzene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 22:35	1
Toluene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 22:35	1
Xylenes, Total	ND		0.097		mg/Kg		04/22/24 12:32	04/23/24 22:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*39 - 146*	*04/22/24 12:32*	*04/23/24 22:35*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		04/23/24 13:42	04/24/24 21:19	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/23/24 13:42	04/24/24 21:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*114*		*62 - 134*	*04/23/24 13:42*	*04/24/24 21:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		60		mg/Kg		04/23/24 16:44	04/24/24 10:27	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: WS24-08 2.5-3.5'
Date Collected: 04/18/24 12:30
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-4
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/22/24 12:32	04/23/24 22:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*15 - 244*	*04/22/24 12:32*	*04/23/24 22:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/23/24 22:59	1
Ethylbenzene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 22:59	1
Toluene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 22:59	1
Xylenes, Total	ND		0.096		mg/Kg		04/22/24 12:32	04/23/24 22:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*39 - 146*	*04/22/24 12:32*	*04/23/24 22:59*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		04/23/24 13:42	04/24/24 21:31	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/23/24 13:42	04/24/24 21:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*	*04/23/24 13:42*	*04/24/24 21:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**87**		60		mg/Kg		04/23/24 16:44	04/24/24 10:40	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-17 1'
Date Collected: 04/18/24 09:30
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-5
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/22/24 12:32	04/23/24 23:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*15 - 244*	*04/22/24 12:32*	*04/23/24 23:24*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/23/24 23:24	1
Ethylbenzene	ND		0.047		mg/Kg		04/22/24 12:32	04/23/24 23:24	1
Toluene	ND		0.047		mg/Kg		04/22/24 12:32	04/23/24 23:24	1
Xylenes, Total	ND		0.095		mg/Kg		04/22/24 12:32	04/23/24 23:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*39 - 146*	*04/22/24 12:32*	*04/23/24 23:24*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		04/23/24 13:42	04/24/24 21:42	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/23/24 13:42	04/24/24 21:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*81*		*62 - 134*	*04/23/24 13:42*	*04/24/24 21:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**210**		61		mg/Kg		04/23/24 16:44	04/24/24 11:18	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-28 1'
Date Collected: 04/18/24 09:35
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-6
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/22/24 12:32	04/23/24 23:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*15 - 244*	*04/22/24 12:32*	*04/23/24 23:49*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/23/24 23:49	1
Ethylbenzene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 23:49	1
Toluene	ND		0.048		mg/Kg		04/22/24 12:32	04/23/24 23:49	1
Xylenes, Total	ND		0.095		mg/Kg		04/22/24 12:32	04/23/24 23:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*39 - 146*	*04/22/24 12:32*	*04/23/24 23:49*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		04/23/24 13:42	04/24/24 21:53	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/23/24 13:42	04/24/24 21:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*04/23/24 13:42*	*04/24/24 21:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**90**		60		mg/Kg		04/23/24 16:44	04/24/24 11:31	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-21 1'
Date Collected: 04/18/24 09:40
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-7
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/22/24 12:32	04/24/24 00:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*15 - 244*	*04/22/24 12:32*	*04/24/24 00:14*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/22/24 12:32	04/24/24 00:14	1
Ethylbenzene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 00:14	1
Toluene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 00:14	1
Xylenes, Total	ND		0.093		mg/Kg		04/22/24 12:32	04/24/24 00:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*39 - 146*	*04/22/24 12:32*	*04/24/24 00:14*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		04/23/24 13:42	04/24/24 22:04	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/23/24 13:42	04/24/24 22:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*04/23/24 13:42*	*04/24/24 22:04*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		04/23/24 16:44	04/24/24 11:44	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-22 1'
Date Collected: 04/18/24 09:45
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-8
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/22/24 12:32	04/24/24 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*15 - 244*	*04/22/24 12:32*	*04/24/24 00:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/24/24 00:38	1
Ethylbenzene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 00:38	1
Toluene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 00:38	1
Xylenes, Total	ND		0.095		mg/Kg		04/22/24 12:32	04/24/24 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*39 - 146*	*04/22/24 12:32*	*04/24/24 00:38*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		04/23/24 13:42	04/24/24 22:15	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/23/24 13:42	04/24/24 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*04/23/24 13:42*	*04/24/24 22:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		04/23/24 16:44	04/24/24 11:57	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-23 1'
Date Collected: 04/18/24 09:50
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-9
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/22/24 12:32	04/24/24 01:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*15 - 244*	*04/22/24 12:32*	*04/24/24 01:03*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/22/24 12:32	04/24/24 01:03	1
Ethylbenzene	ND		0.049		mg/Kg		04/22/24 12:32	04/24/24 01:03	1
Toluene	ND		0.049		mg/Kg		04/22/24 12:32	04/24/24 01:03	1
Xylenes, Total	ND		0.099		mg/Kg		04/22/24 12:32	04/24/24 01:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*39 - 146*	*04/22/24 12:32*	*04/24/24 01:03*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		04/23/24 13:42	04/24/24 22:27	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/23/24 13:42	04/24/24 22:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*113*		*62 - 134*	*04/23/24 13:42*	*04/24/24 22:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**100**		60		mg/Kg		04/23/24 16:44	04/24/24 12:10	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-29 3.5'
Date Collected: 04/18/24 12:45
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-10
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		04/22/24 12:32	04/24/24 01:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*15 - 244*	*04/22/24 12:32*	*04/24/24 01:27*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/22/24 12:32	04/24/24 01:27	1
Ethylbenzene	ND		0.046		mg/Kg		04/22/24 12:32	04/24/24 01:27	1
Toluene	ND		0.046		mg/Kg		04/22/24 12:32	04/24/24 01:27	1
Xylenes, Total	ND		0.093		mg/Kg		04/22/24 12:32	04/24/24 01:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*39 - 146*	*04/22/24 12:32*	*04/24/24 01:27*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		04/23/24 13:42	04/25/24 13:05	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/23/24 13:42	04/25/24 13:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*120*		*62 - 134*	*04/23/24 13:42*	*04/25/24 13:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**80**		60		mg/Kg		04/23/24 16:44	04/24/24 12:23	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-30 2.5'
Date Collected: 04/18/24 12:20
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-11
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/22/24 12:32	04/24/24 02:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*15 - 244*	*04/22/24 12:32*	*04/24/24 02:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/24/24 02:17	1
Ethylbenzene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 02:17	1
Toluene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 02:17	1
Xylenes, Total	ND		0.095		mg/Kg		04/22/24 12:32	04/24/24 02:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*39 - 146*	*04/22/24 12:32*	*04/24/24 02:17*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		04/23/24 13:42	04/24/24 22:49	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/23/24 13:42	04/24/24 22:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*04/23/24 13:42*	*04/24/24 22:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**270**		61		mg/Kg		04/23/24 16:44	04/24/24 12:36	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-31 3.5'
Date Collected: 04/18/24 12:35
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-12
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/22/24 12:32	04/24/24 02:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*15 - 244*	*04/22/24 12:32*	*04/24/24 02:41*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/24/24 02:41	1
Ethylbenzene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 02:41	1
Toluene	ND		0.047		mg/Kg		04/22/24 12:32	04/24/24 02:41	1
Xylenes, Total	ND		0.095		mg/Kg		04/22/24 12:32	04/24/24 02:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*39 - 146*	*04/22/24 12:32*	*04/24/24 02:41*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		04/23/24 13:42	04/24/24 23:00	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/23/24 13:42	04/24/24 23:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*04/23/24 13:42*	*04/24/24 23:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		60		mg/Kg		04/23/24 16:44	04/24/24 12:48	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-32 2.5'
Date Collected: 04/18/24 12:15
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-13
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/22/24 12:32	04/24/24 03:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*15 - 244*	*04/22/24 12:32*	*04/24/24 03:06*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/22/24 12:32	04/24/24 03:06	1
Ethylbenzene	ND		0.050		mg/Kg		04/22/24 12:32	04/24/24 03:06	1
Toluene	ND		0.050		mg/Kg		04/22/24 12:32	04/24/24 03:06	1
Xylenes, Total	ND		0.10		mg/Kg		04/22/24 12:32	04/24/24 03:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*39 - 146*	*04/22/24 12:32*	*04/24/24 03:06*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		04/23/24 13:42	04/24/24 23:11	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/23/24 13:42	04/24/24 23:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*121*		*62 - 134*	*04/23/24 13:42*	*04/24/24 23:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		60		mg/Kg		04/23/24 16:44	04/24/24 13:01	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-33 2.5'
Date Collected: 04/18/24 12:10
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-14
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		04/22/24 12:32	04/24/24 03:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*15 - 244*	*04/22/24 12:32*	*04/24/24 03:30*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/22/24 12:32	04/24/24 03:30	1
Ethylbenzene	ND		0.046		mg/Kg		04/22/24 12:32	04/24/24 03:30	1
Toluene	ND		0.046		mg/Kg		04/22/24 12:32	04/24/24 03:30	1
Xylenes, Total	ND		0.093		mg/Kg		04/22/24 12:32	04/24/24 03:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*39 - 146*	*04/22/24 12:32*	*04/24/24 03:30*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		04/23/24 13:42	04/24/24 23:22	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/23/24 13:42	04/24/24 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*	*04/23/24 13:42*	*04/24/24 23:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		60		mg/Kg		04/23/24 16:44	04/24/24 13:14	20

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-34 3.5'
Date Collected: 04/18/24 12:40
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-15
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/22/24 12:32	04/24/24 03:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*15 - 244*	*04/22/24 12:32*	*04/24/24 03:54*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/22/24 12:32	04/24/24 03:54	1
Ethylbenzene	ND		0.048		mg/Kg		04/22/24 12:32	04/24/24 03:54	1
Toluene	ND		0.048		mg/Kg		04/22/24 12:32	04/24/24 03:54	1
Xylenes, Total	ND		0.096		mg/Kg		04/22/24 12:32	04/24/24 03:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*39 - 146*	*04/22/24 12:32*	*04/24/24 03:54*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		04/23/24 13:42	04/24/24 23:33	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/23/24 13:42	04/24/24 23:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*04/23/24 13:42*	*04/24/24 23:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		60		mg/Kg		04/23/24 16:44	04/24/24 13:53	20

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-3667/1-A
Matrix: Solid
Analysis Batch: 3824

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3667

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/22/24 12:32	04/23/24 19:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*15 - 244*	*04/22/24 12:32*	*04/23/24 19:41*	*1*

Lab Sample ID: LCS 885-3667/2-A
Matrix: Solid
Analysis Batch: 3824

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3667

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	25.6		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*223*		*15 - 244*

Lab Sample ID: 885-3166-1 MS
Matrix: Solid
Analysis Batch: 3824

Client Sample ID: WS24-04 0-1'
Prep Type: Total/NA
Prep Batch: 3667

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		23.4	27.3		mg/Kg		117	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*241*		*15 - 244*

Lab Sample ID: 885-3166-1 MSD
Matrix: Solid
Analysis Batch: 3824

Client Sample ID: WS24-04 0-1'
Prep Type: Total/NA
Prep Batch: 3667

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		23.3	27.4		mg/Kg		117	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*243*		*15 - 244*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-3667/1-A
Matrix: Solid
Analysis Batch: 3825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3667

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/22/24 12:32	04/23/24 19:41	1
Ethylbenzene	ND		0.050		mg/Kg		04/22/24 12:32	04/23/24 19:41	1
Toluene	ND		0.050		mg/Kg		04/22/24 12:32	04/23/24 19:41	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-3667/1-A
Matrix: Solid
Analysis Batch: 3825

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3667

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		04/22/24 12:32	04/23/24 19:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*39 - 146*	*04/22/24 12:32*	*04/23/24 19:41*	*1*

Lab Sample ID: LCS 885-3667/3-A
Matrix: Solid
Analysis Batch: 3825

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3667

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.911		mg/Kg		91	70 - 130		
Ethylbenzene			1.00	0.892		mg/Kg		89	70 - 130		
m,p-Xylene			2.00	1.83		mg/Kg		92	70 - 130		
o-Xylene			1.00	0.907		mg/Kg		91	70 - 130		
Toluene			1.00	0.878		mg/Kg		88	70 - 130		
Xylenes, Total			3.00	2.74		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*39 - 146*

Lab Sample ID: 885-3166-2 MS
Matrix: Solid
Analysis Batch: 3825

Client Sample ID: WS24-06 1-3.5'
Prep Type: Total/NA
Prep Batch: 3667

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.966	0.947		mg/Kg		98	70 - 130		
Ethylbenzene	ND		0.966	0.946		mg/Kg		98	70 - 130		
m,p-Xylene	ND		1.93	1.94		mg/Kg		100	70 - 130		
o-Xylene	ND		0.966	0.974		mg/Kg		101	70 - 130		
Toluene	ND		0.966	0.900		mg/Kg		92	70 - 130		
Xylenes, Total	ND		2.90	2.91		mg/Kg		101	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*39 - 146*

Lab Sample ID: 885-3166-2 MSD
Matrix: Solid
Analysis Batch: 3825

Client Sample ID: WS24-06 1-3.5'
Prep Type: Total/NA
Prep Batch: 3667

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.970	0.961		mg/Kg		99	70 - 130	1	20
Ethylbenzene	ND		0.970	0.959		mg/Kg		99	70 - 130	1	20
m,p-Xylene	ND		1.94	1.94		mg/Kg		100	70 - 130	0	20
o-Xylene	ND		0.970	0.984		mg/Kg		101	70 - 130	1	20
Toluene	ND		0.970	0.927		mg/Kg		94	70 - 130	3	20
Xylenes, Total	ND		2.91	2.93		mg/Kg		101	70 - 130	0	20

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-3166-2 MSD
Matrix: Solid
Analysis Batch: 3825

Client Sample ID: WS24-06 1-3.5'
Prep Type: Total/NA
Prep Batch: 3667

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*106*		*39 - 146*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-3758/1-A
Matrix: Solid
Analysis Batch: 3832

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3758

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/23/24 13:42	04/24/24 20:34	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/23/24 13:42	04/24/24 20:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*04/23/24 13:42*	*04/24/24 20:34*	*1*

Lab Sample ID: LCS 885-3758/2-A
Matrix: Solid
Analysis Batch: 3832

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3758

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	48.4		mg/Kg		97	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-3774/1-A
Matrix: Solid
Analysis Batch: 3852

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3774

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.5		mg/Kg		04/23/24 16:44	04/24/24 08:44	1

Lab Sample ID: LCS 885-3774/2-A
Matrix: Solid
Analysis Batch: 3852

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3774

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			15.0	13.9		mg/Kg		93	90 - 110		

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

GC VOA

Prep Batch: 3667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	5030C	
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	5030C	
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	5030C	
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	5030C	
885-3166-5	BS24-17 1'	Total/NA	Solid	5030C	
885-3166-6	BS24-28 1'	Total/NA	Solid	5030C	
885-3166-7	BS24-21 1'	Total/NA	Solid	5030C	
885-3166-8	BS24-22 1'	Total/NA	Solid	5030C	
885-3166-9	BS24-23 1'	Total/NA	Solid	5030C	
885-3166-10	BS24-29 3.5'	Total/NA	Solid	5030C	
885-3166-11	BS24-30 2.5'	Total/NA	Solid	5030C	
885-3166-12	BS24-31 3.5'	Total/NA	Solid	5030C	
885-3166-13	BS24-32 2.5'	Total/NA	Solid	5030C	
885-3166-14	BS24-33 2.5'	Total/NA	Solid	5030C	
885-3166-15	BS24-34 3.5'	Total/NA	Solid	5030C	
MB 885-3667/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-3667/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-3667/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-3166-1 MS	WS24-04 0-1'	Total/NA	Solid	5030C	
885-3166-1 MSD	WS24-04 0-1'	Total/NA	Solid	5030C	
885-3166-2 MS	WS24-06 1-3.5'	Total/NA	Solid	5030C	
885-3166-2 MSD	WS24-06 1-3.5'	Total/NA	Solid	5030C	

Analysis Batch: 3824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	8015D	3667
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	8015D	3667
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	8015D	3667
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	8015D	3667
885-3166-5	BS24-17 1'	Total/NA	Solid	8015D	3667
885-3166-6	BS24-28 1'	Total/NA	Solid	8015D	3667
885-3166-7	BS24-21 1'	Total/NA	Solid	8015D	3667
885-3166-8	BS24-22 1'	Total/NA	Solid	8015D	3667
885-3166-9	BS24-23 1'	Total/NA	Solid	8015D	3667
885-3166-10	BS24-29 3.5'	Total/NA	Solid	8015D	3667
885-3166-11	BS24-30 2.5'	Total/NA	Solid	8015D	3667
885-3166-12	BS24-31 3.5'	Total/NA	Solid	8015D	3667
885-3166-13	BS24-32 2.5'	Total/NA	Solid	8015D	3667
885-3166-14	BS24-33 2.5'	Total/NA	Solid	8015D	3667
885-3166-15	BS24-34 3.5'	Total/NA	Solid	8015D	3667
MB 885-3667/1-A	Method Blank	Total/NA	Solid	8015D	3667
LCS 885-3667/2-A	Lab Control Sample	Total/NA	Solid	8015D	3667
885-3166-1 MS	WS24-04 0-1'	Total/NA	Solid	8015D	3667
885-3166-1 MSD	WS24-04 0-1'	Total/NA	Solid	8015D	3667

Analysis Batch: 3825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	8021B	3667
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	8021B	3667
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	8021B	3667
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	8021B	3667

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

GC VOA (Continued)

Analysis Batch: 3825 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-5	BS24-17 1'	Total/NA	Solid	8021B	3667
885-3166-6	BS24-28 1'	Total/NA	Solid	8021B	3667
885-3166-7	BS24-21 1'	Total/NA	Solid	8021B	3667
885-3166-8	BS24-22 1'	Total/NA	Solid	8021B	3667
885-3166-9	BS24-23 1'	Total/NA	Solid	8021B	3667
885-3166-10	BS24-29 3.5'	Total/NA	Solid	8021B	3667
885-3166-11	BS24-30 2.5'	Total/NA	Solid	8021B	3667
885-3166-12	BS24-31 3.5'	Total/NA	Solid	8021B	3667
885-3166-13	BS24-32 2.5'	Total/NA	Solid	8021B	3667
885-3166-14	BS24-33 2.5'	Total/NA	Solid	8021B	3667
885-3166-15	BS24-34 3.5'	Total/NA	Solid	8021B	3667
MB 885-3667/1-A	Method Blank	Total/NA	Solid	8021B	3667
LCS 885-3667/3-A	Lab Control Sample	Total/NA	Solid	8021B	3667
885-3166-2 MS	WS24-06 1-3.5'	Total/NA	Solid	8021B	3667
885-3166-2 MSD	WS24-06 1-3.5'	Total/NA	Solid	8021B	3667

GC Semi VOA

Prep Batch: 3758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	SHAKE	
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	SHAKE	
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	SHAKE	
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	SHAKE	
885-3166-5	BS24-17 1'	Total/NA	Solid	SHAKE	
885-3166-6	BS24-28 1'	Total/NA	Solid	SHAKE	
885-3166-7	BS24-21 1'	Total/NA	Solid	SHAKE	
885-3166-8	BS24-22 1'	Total/NA	Solid	SHAKE	
885-3166-9	BS24-23 1'	Total/NA	Solid	SHAKE	
885-3166-10	BS24-29 3.5'	Total/NA	Solid	SHAKE	
885-3166-11	BS24-30 2.5'	Total/NA	Solid	SHAKE	
885-3166-12	BS24-31 3.5'	Total/NA	Solid	SHAKE	
885-3166-13	BS24-32 2.5'	Total/NA	Solid	SHAKE	
885-3166-14	BS24-33 2.5'	Total/NA	Solid	SHAKE	
885-3166-15	BS24-34 3.5'	Total/NA	Solid	SHAKE	
MB 885-3758/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-3758/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 3832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	8015D	3758
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	8015D	3758
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	8015D	3758
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	8015D	3758
885-3166-5	BS24-17 1'	Total/NA	Solid	8015D	3758
885-3166-6	BS24-28 1'	Total/NA	Solid	8015D	3758
885-3166-7	BS24-21 1'	Total/NA	Solid	8015D	3758
885-3166-8	BS24-22 1'	Total/NA	Solid	8015D	3758
885-3166-9	BS24-23 1'	Total/NA	Solid	8015D	3758
885-3166-11	BS24-30 2.5'	Total/NA	Solid	8015D	3758
885-3166-12	BS24-31 3.5'	Total/NA	Solid	8015D	3758

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

GC Semi VOA (Continued)

Analysis Batch: 3832 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-13	BS24-32 2.5'	Total/NA	Solid	8015D	3758
885-3166-14	BS24-33 2.5'	Total/NA	Solid	8015D	3758
885-3166-15	BS24-34 3.5'	Total/NA	Solid	8015D	3758
MB 885-3758/1-A	Method Blank	Total/NA	Solid	8015D	3758
LCS 885-3758/2-A	Lab Control Sample	Total/NA	Solid	8015D	3758

Analysis Batch: 3940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-10	BS24-29 3.5'	Total/NA	Solid	8015D	3758

HPLC/IC

Prep Batch: 3774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	300_Prep	
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	300_Prep	
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	300_Prep	
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	300_Prep	
885-3166-5	BS24-17 1'	Total/NA	Solid	300_Prep	
885-3166-6	BS24-28 1'	Total/NA	Solid	300_Prep	
885-3166-7	BS24-21 1'	Total/NA	Solid	300_Prep	
885-3166-8	BS24-22 1'	Total/NA	Solid	300_Prep	
885-3166-9	BS24-23 1'	Total/NA	Solid	300_Prep	
885-3166-10	BS24-29 3.5'	Total/NA	Solid	300_Prep	
885-3166-11	BS24-30 2.5'	Total/NA	Solid	300_Prep	
885-3166-12	BS24-31 3.5'	Total/NA	Solid	300_Prep	
885-3166-13	BS24-32 2.5'	Total/NA	Solid	300_Prep	
885-3166-14	BS24-33 2.5'	Total/NA	Solid	300_Prep	
885-3166-15	BS24-34 3.5'	Total/NA	Solid	300_Prep	
MB 885-3774/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-3774/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 3852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3166-1	WS24-04 0-1'	Total/NA	Solid	300.0	3774
885-3166-2	WS24-06 1-3.5'	Total/NA	Solid	300.0	3774
885-3166-3	WS24-07 0-2.5'	Total/NA	Solid	300.0	3774
885-3166-4	WS24-08 2.5-3.5'	Total/NA	Solid	300.0	3774
885-3166-5	BS24-17 1'	Total/NA	Solid	300.0	3774
885-3166-6	BS24-28 1'	Total/NA	Solid	300.0	3774
885-3166-7	BS24-21 1'	Total/NA	Solid	300.0	3774
885-3166-8	BS24-22 1'	Total/NA	Solid	300.0	3774
885-3166-9	BS24-23 1'	Total/NA	Solid	300.0	3774
885-3166-10	BS24-29 3.5'	Total/NA	Solid	300.0	3774
885-3166-11	BS24-30 2.5'	Total/NA	Solid	300.0	3774
885-3166-12	BS24-31 3.5'	Total/NA	Solid	300.0	3774
885-3166-13	BS24-32 2.5'	Total/NA	Solid	300.0	3774
885-3166-14	BS24-33 2.5'	Total/NA	Solid	300.0	3774
885-3166-15	BS24-34 3.5'	Total/NA	Solid	300.0	3774
MB 885-3774/1-A	Method Blank	Total/NA	Solid	300.0	3774
LCS 885-3774/2-A	Lab Control Sample	Total/NA	Solid	300.0	3774

Lab Chronicle

Client: Vertex
Job ID: 885-3166-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: WS24-04 0-1'
Lab Sample ID: 885-3166-1
Date Collected: 04/18/24 10:00
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/23/24 20:06
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/23/24 20:06
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 20:57
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 10:01

Client Sample ID: WS24-06 1-3.5'
Lab Sample ID: 885-3166-2
Date Collected: 04/18/24 12:50
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/23/24 21:20
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/23/24 21:20
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 21:08
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 10:14

Client Sample ID: WS24-07 0-2.5'
Lab Sample ID: 885-3166-3
Date Collected: 04/18/24 12:05
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/23/24 22:35
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/23/24 22:35
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 21:19
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 10:27

Client Sample ID: WS24-08 2.5-3.5'
Lab Sample ID: 885-3166-4
Date Collected: 04/18/24 12:30
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/23/24 22:59

Lab Chronicle

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: WS24-08 2.5-3.5'
Date Collected: 04/18/24 12:30
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/23/24 22:59
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 21:31
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 10:40

Client Sample ID: BS24-17 1'
Date Collected: 04/18/24 09:30
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/23/24 23:24
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/23/24 23:24
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 21:42
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 11:18

Client Sample ID: BS24-28 1'
Date Collected: 04/18/24 09:35
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/23/24 23:49
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/23/24 23:49
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 21:53
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 11:31

Client Sample ID: BS24-21 1'
Date Collected: 04/18/24 09:40
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 00:14
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 00:14

Lab Chronicle

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3166-1

Client Sample ID: BS24-21 1'
Date Collected: 04/18/24 09:40
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 22:04
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 11:44

Client Sample ID: BS24-22 1'
Date Collected: 04/18/24 09:45
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 00:38
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 00:38
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 22:15
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 11:57

Client Sample ID: BS24-23 1'
Date Collected: 04/18/24 09:50
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 01:03
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 01:03
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 22:27
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 12:10

Client Sample ID: BS24-29 3.5'
Date Collected: 04/18/24 12:45
Date Received: 04/20/24 09:40

Lab Sample ID: 885-3166-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 01:27
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 01:27
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3940	JU	EET ALB	04/25/24 13:05

Lab Chronicle

Client: Vertex
Job ID: 885-3166-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-29 3.5'
Lab Sample ID: 885-3166-10
Date Collected: 04/18/24 12:45
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 12:23

Client Sample ID: BS24-30 2.5'
Lab Sample ID: 885-3166-11
Date Collected: 04/18/24 12:20
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 02:17
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 02:17
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 22:49
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 12:36

Client Sample ID: BS24-31 3.5'
Lab Sample ID: 885-3166-12
Date Collected: 04/18/24 12:35
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 02:41
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 02:41
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 23:00
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 12:48

Client Sample ID: BS24-32 2.5'
Lab Sample ID: 885-3166-13
Date Collected: 04/18/24 12:15
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 03:06
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 03:06
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 23:11
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 13:01

Lab Chronicle

Client: Vertex
Job ID: 885-3166-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-33 2.5'
Lab Sample ID: 885-3166-14
Date Collected: 04/18/24 12:10
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 03:30
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 03:30
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 23:22
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 13:14

Client Sample ID: BS24-34 3.5'
Lab Sample ID: 885-3166-15
Date Collected: 04/18/24 12:40
Matrix: Solid
Date Received: 04/20/24 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8015D		1	3824	JP	EET ALB	04/24/24 03:54
Total/NA	Prep	5030C			3667	JR	EET ALB	04/22/24 12:32
Total/NA	Analysis	8021B		1	3825	JP	EET ALB	04/24/24 03:54
Total/NA	Prep	SHAKE			3758	JU	EET ALB	04/23/24 13:42
Total/NA	Analysis	8015D		1	3832	JU	EET ALB	04/24/24 23:33
Total/NA	Prep	300_Prep			3774	SS	EET ALB	04/23/24 16:44
Total/NA	Analysis	300.0		20	3852	JT	EET ALB	04/24/24 13:53

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-3166-1
Project/Site: Dickens 29 Federal #003H

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address (On File)

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
Dickens 29 Federal #003H

Project #
23E-04710

Project Manager
Sally Carttar
SCarttar@vertex ca

Sampler: L Pullman
On Ice: ☒ Yes ☐ No Morty
# of Coolers: 1
Cooler Temp(including CF): 3.1 ±0 = 3.1

HALL ENVIRONMENTAL ANALYSIS LABORA
www hallenvironmental com
4901 Hawkins NE - Albuquerque, NM 87109 885-3166 COC
Tel 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	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)
4 18 24	10 00	Soil	WS24-04 0-1'	1, 4oz jar		1	X	X					X			
4 18 24	12 50	Soil	WS24-06 1-3 5'	1, 4oz jar		2	X	X					X			
4 18 24	12 05	Soil	WS24-07 0-2 5'	1, 4oz jar		3	X	X					X			
4 18 24	12 30	Soil	WS24-08 2 5-3 5'	1, 4oz jar		4	X	X					X			
4 18 24	9 30	Soil	BS24-17 1'	1, 4oz jar		5	X	X					X			
4 18 24	9 35	Soil	BS24-28 1'	1, 4oz jar		6	X	X					X			
4 18 24	9 40	Soil	BS24-21 1'	1, 4oz jar		7	X	X					X			
4 18 24	9 45	Soil	BS24-22 1'	1, 4oz jar		8	X	X					X			
4 18 24	9 50	Soil	BS24-23 1'	1, 4oz jar		9	X	X					X			
4 18 24	12 45	Soil	BS24-29 3 5'	1, 4oz jar		10	X	X					X			
4 18 24	12 20	Soil	BS24-30 2 5'	1, 4oz jar		11	X	X					X			
4 18 24	12 35	Soil	BS24-31 3 5'	1, 4oz jar		12	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
4-19-24	07:00	John Pullman			4/19/24	0710
4/19/24	1940			courier	4/20/24	9:40

Remarks
Direct Bill to Mack Energy ATTN Matt Buckles

CC Sally Carttar (scarttar@vertex ca) for Final Report

Labeled By: TMC 4/20/24 Checked By:

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 (bill to Mack Energy, Matt Buckles)**

Mailing Address (On File)

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
Dickens 29 Federal #003H

Project #
23E-04710

Project Manager
Sally Carttar
SCarttar@vertex ca

Sampler L Pullman
On Ice: ☒ Yes ☐ No marty
# of Coolers: 1
Cooler Temp(Including CF): 3.1 ± 0 = 3.1°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.	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)						
4 18 24	12 15	Soil	BS24-32 2 5'	1, 4oz jar		13	X	X					X									
4 18 24	12 10	Soil	BS24-33 2 5'	1, 4oz jar		14	X	X					X									
4 18 24	12 40	Soil	BS24-34 3 5'	1, 4oz jar		15	X	X					X									

Date	Time	Relinquished by	Received by	Via	Date	Time
4-19-24	0700	[signature]	[signature]		4/19/24	700
4/19/24	1900	[signature]	[signature]	courier	4/20/24	9:40

Remarks
Direct Bill to Mack Energy ATTN Matt Buckles

CC Sally Carttar (scarttar@vertex ca) for Final Report

2/2

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.

Page 34 of 35

4/26/2024

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-3166-1

Login Number: 3166 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 5/6/2024 3:52:47 PM

JOB DESCRIPTION

Dickens 29 Federal #003H

JOB NUMBER

885-3292-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
5/6/2024 3:52:47 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Laboratory Job ID: 885-3292-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-3292-1
Project/Site: Dickens 29 Federal #003H

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-3292-1
Project: Dickens 29 Federal #003H

Job ID: 885-3292-1 Eurofins Albuquerque

Job Narrative
885-3292-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/24/2024 7:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.1°C and 1.6°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: Surrogate recovery for the following sample was outside the upper control limit: BS2418 1' (885-3292-6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-01 1'
Date Collected: 04/19/24 09:00
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-1
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/24/24 13:52	04/26/24 13:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*15 - 244*	*04/24/24 13:52*	*04/26/24 13:18*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 13:18	1
Ethylbenzene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 13:18	1
Toluene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 13:18	1
Xylenes, Total	ND		0.095		mg/Kg		04/24/24 13:52	04/26/24 13:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*39 - 146*	*04/24/24 13:52*	*04/26/24 13:18*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		04/25/24 15:27	04/26/24 12:16	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/25/24 15:27	04/26/24 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*04/25/24 15:27*	*04/26/24 12:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**210**		5.0		mg/Kg			05/03/24 15:10	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-03 1'
Date Collected: 04/19/24 09:05
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-2
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/24/24 13:52	04/26/24 14:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/24/24 13:52*	*04/26/24 14:23*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 14:23	1
Ethylbenzene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 14:23	1
Toluene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 14:23	1
Xylenes, Total	ND		0.097		mg/Kg		04/24/24 13:52	04/26/24 14:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*39 - 146*	*04/24/24 13:52*	*04/26/24 14:23*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		04/25/24 15:27	04/26/24 12:29	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/25/24 15:27	04/26/24 12:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*04/25/24 15:27*	*04/26/24 12:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**480**		5.0		mg/Kg			05/03/24 15:28	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-04 1'
Date Collected: 04/19/24 09:10
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-3
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/24/24 13:52	04/26/24 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*15 - 244*	*04/24/24 13:52*	*04/26/24 15:28*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/24/24 13:52	04/26/24 15:28	1
Ethylbenzene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 15:28	1
Toluene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 15:28	1
Xylenes, Total	ND		0.094		mg/Kg		04/24/24 13:52	04/26/24 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/24/24 13:52*	*04/26/24 15:28*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.6		mg/Kg		04/25/24 15:27	04/26/24 12:42	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		04/25/24 15:27	04/26/24 12:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*04/25/24 15:27*	*04/26/24 12:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**70**		5.0		mg/Kg			05/03/24 15:34	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-05 1'
Date Collected: 04/19/24 09:20
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-4
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/24/24 13:52	04/26/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*15 - 244*	*04/24/24 13:52*	*04/26/24 15:50*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/24/24 13:52	04/26/24 15:50	1
Ethylbenzene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 15:50	1
Toluene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 15:50	1
Xylenes, Total	ND		0.093		mg/Kg		04/24/24 13:52	04/26/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/24/24 13:52*	*04/26/24 15:50*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.8		mg/Kg		04/25/24 15:27	04/26/24 12:54	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		04/25/24 15:27	04/26/24 12:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*04/25/24 15:27*	*04/26/24 12:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**17**		5.0		mg/Kg			05/03/24 15:40	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-16 1'
Date Collected: 04/19/24 09:25
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-5
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/24/24 13:52	04/26/24 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/24/24 13:52*	*04/26/24 16:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 16:12	1
Ethylbenzene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 16:12	1
Toluene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 16:12	1
Xylenes, Total	ND		0.096		mg/Kg		04/24/24 13:52	04/26/24 16:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*39 - 146*	*04/24/24 13:52*	*04/26/24 16:12*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.4		mg/Kg		04/25/24 15:27	04/26/24 13:07	1
Motor Oil Range Organics [C28-C40]	ND		42		mg/Kg		04/25/24 15:27	04/26/24 13:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*04/25/24 15:27*	*04/26/24 13:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**24**		5.0		mg/Kg			05/03/24 15:46	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS2418 1'
Date Collected: 04/19/24 09:30
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-6
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/24/24 13:52	04/26/24 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/24/24 13:52*	*04/26/24 16:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 16:34	1
Ethylbenzene	ND		0.049		mg/Kg		04/24/24 13:52	04/26/24 16:34	1
Toluene	ND		0.049		mg/Kg		04/24/24 13:52	04/26/24 16:34	1
Xylenes, Total	ND		0.097		mg/Kg		04/24/24 13:52	04/26/24 16:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*39 - 146*	*04/24/24 13:52*	*04/26/24 16:34*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		04/25/24 15:27	04/26/24 13:19	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/25/24 15:27	04/26/24 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*135*	*S1+*	*62 - 134*	*04/25/24 15:27*	*04/26/24 13:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.5**		5.0		mg/Kg			05/03/24 17:19	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-24 1'
Date Collected: 04/19/24 09:35
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-7
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/24/24 13:52	04/26/24 16:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*15 - 244*	*04/24/24 13:52*	*04/26/24 16:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 16:55	1
Ethylbenzene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 16:55	1
Toluene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 16:55	1
Xylenes, Total	ND		0.096		mg/Kg		04/24/24 13:52	04/26/24 16:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*39 - 146*	*04/24/24 13:52*	*04/26/24 16:55*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		04/25/24 15:27	04/26/24 13:32	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		04/25/24 15:27	04/26/24 13:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*04/25/24 15:27*	*04/26/24 13:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**310**		5.0		mg/Kg			05/03/24 17:25	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-26 1'
Date Collected: 04/19/24 09:45
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-8
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/24/24 13:52	04/26/24 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*15 - 244*	*04/24/24 13:52*	*04/26/24 17:39*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 17:39	1
Ethylbenzene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 17:39	1
Toluene	ND		0.048		mg/Kg		04/24/24 13:52	04/26/24 17:39	1
Xylenes, Total	ND		0.096		mg/Kg		04/24/24 13:52	04/26/24 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*39 - 146*	*04/24/24 13:52*	*04/26/24 17:39*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.5		mg/Kg		04/25/24 15:27	04/26/24 13:45	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		04/25/24 15:27	04/26/24 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*04/25/24 15:27*	*04/26/24 13:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**180**		5.0		mg/Kg			05/03/24 17:31	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-27 1'
Date Collected: 04/19/24 09:50
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-9
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/24/24 13:52	04/26/24 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/24/24 13:52*	*04/26/24 18:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/24/24 13:52	04/26/24 18:00	1
Ethylbenzene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 18:00	1
Toluene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 18:00	1
Xylenes, Total	ND		0.094		mg/Kg		04/24/24 13:52	04/26/24 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/24/24 13:52*	*04/26/24 18:00*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		04/25/24 15:27	04/26/24 13:58	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/25/24 15:27	04/26/24 13:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*04/25/24 15:27*	*04/26/24 13:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		5.0		mg/Kg			05/03/24 17:37	1

Client Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-35 1'
Date Collected: 04/19/24 09:55
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-10
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/24/24 13:52	04/26/24 18:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/24/24 13:52*	*04/26/24 18:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/24/24 13:52	04/26/24 18:22	1
Ethylbenzene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 18:22	1
Toluene	ND		0.047		mg/Kg		04/24/24 13:52	04/26/24 18:22	1
Xylenes, Total	ND		0.095		mg/Kg		04/24/24 13:52	04/26/24 18:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*39 - 146*	*04/24/24 13:52*	*04/26/24 18:22*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		04/25/24 15:27	04/26/24 14:10	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/25/24 15:27	04/26/24 14:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*04/25/24 15:27*	*04/26/24 14:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**70**		5.0		mg/Kg			05/03/24 17:43	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-3834/1-A
Matrix: Solid
Analysis Batch: 4029

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3834

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/24/24 13:52	04/26/24 11:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*15 - 244*	*04/24/24 13:52*	*04/26/24 11:50*	*1*

Lab Sample ID: LCS 885-3834/2-A
Matrix: Solid
Analysis Batch: 4029

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3834

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	25.4		mg/Kg		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*222*		*15 - 244*

Lab Sample ID: 885-3292-1 MS
Matrix: Solid
Analysis Batch: 4029

Client Sample ID: BS24-01 1'
Prep Type: Total/NA
Prep Batch: 3834

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		23.8	24.1		mg/Kg		101	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*223*		*15 - 244*

Lab Sample ID: 885-3292-1 MSD
Matrix: Solid
Analysis Batch: 4029

Client Sample ID: BS24-01 1'
Prep Type: Total/NA
Prep Batch: 3834

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		23.7	23.6		mg/Kg		100	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*227*		*15 - 244*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-3834/1-A
Matrix: Solid
Analysis Batch: 4030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3834

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/24/24 13:52	04/26/24 11:50	1
Ethylbenzene	ND		0.050		mg/Kg		04/24/24 13:52	04/26/24 11:50	1
Toluene	ND		0.050		mg/Kg		04/24/24 13:52	04/26/24 11:50	1

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-3834/1-A
Matrix: Solid
Analysis Batch: 4030

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3834

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		04/24/24 13:52	04/26/24 11:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/24/24 13:52*	*04/26/24 11:50*	*1*

Lab Sample ID: LCS 885-3834/3-A
Matrix: Solid
Analysis Batch: 4030

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3834

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.889		mg/Kg		89	70 - 130		
Ethylbenzene			1.00	0.900		mg/Kg		90	70 - 130		
m,p-Xylene			2.00	1.80		mg/Kg		90	70 - 130		
o-Xylene			1.00	0.908		mg/Kg		91	70 - 130		
Toluene			1.00	0.899		mg/Kg		90	70 - 130		
Xylenes, Total			3.00	2.71		mg/Kg		90	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*

Lab Sample ID: 885-3292-2 MS
Matrix: Solid
Analysis Batch: 4030

Client Sample ID: BS24-03 1'
Prep Type: Total/NA
Prep Batch: 3834

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.970	0.882		mg/Kg		91	70 - 130		
Ethylbenzene	ND		0.970	0.909		mg/Kg		94	70 - 130		
m,p-Xylene	ND		1.94	1.82		mg/Kg		94	70 - 130		
o-Xylene	ND		0.970	0.914		mg/Kg		94	70 - 130		
Toluene	ND		0.970	0.898		mg/Kg		93	70 - 130		
Xylenes, Total	ND		2.91	2.74		mg/Kg		94	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*39 - 146*

Lab Sample ID: 885-3292-2 MSD
Matrix: Solid
Analysis Batch: 4030

Client Sample ID: BS24-03 1'
Prep Type: Total/NA
Prep Batch: 3834

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.972	0.896		mg/Kg		92	70 - 130	2	20
Ethylbenzene	ND		0.972	0.933		mg/Kg		96	70 - 130	3	20
m,p-Xylene	ND		1.94	1.87		mg/Kg		96	70 - 130	2	20
o-Xylene	ND		0.972	0.935		mg/Kg		96	70 - 130	2	20
Toluene	ND		0.972	0.916		mg/Kg		94	70 - 130	2	20
Xylenes, Total	ND		2.92	2.80		mg/Kg		96	70 - 130	2	20

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-3292-2 MSD
Matrix: Solid
Analysis Batch: 4030

Client Sample ID: BS24-03 1'
Prep Type: Total/NA
Prep Batch: 3834

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*90*		*39 - 146*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-3914/1-A
Matrix: Solid
Analysis Batch: 4043

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3914

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/25/24 15:27	04/26/24 11:51	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/25/24 15:27	04/26/24 11:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*04/25/24 15:27*	*04/26/24 11:51*	*1*

Lab Sample ID: LCS 885-3914/2-A
Matrix: Solid
Analysis Batch: 4043

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3914

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	43.6		mg/Kg		87	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-79933/1-A
Matrix: Solid
Analysis Batch: 79940

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			05/03/24 14:51	1

Lab Sample ID: LCS 880-79933/2-A
Matrix: Solid
Analysis Batch: 79940

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	250		mg/Kg		100	90 - 110		

Lab Sample ID: LCSD 880-79933/3-A
Matrix: Solid
Analysis Batch: 79940

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249		mg/Kg		100	90 - 110	0	20

QC Sample Results

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 885-3292-1 MS
Matrix: Solid
Analysis Batch: 79940

Client Sample ID: BS24-01 1'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	210		250	470		mg/Kg		102	90 - 110		

Lab Sample ID: 885-3292-1 MSD
Matrix: Solid
Analysis Batch: 79940

Client Sample ID: BS24-01 1'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	210		250	469		mg/Kg		102	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

GC VOA

Prep Batch: 3834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Total/NA	Solid	5030C	
885-3292-2	BS24-03 1'	Total/NA	Solid	5030C	
885-3292-3	BS24-04 1'	Total/NA	Solid	5030C	
885-3292-4	BS24-05 1'	Total/NA	Solid	5030C	
885-3292-5	BS24-16 1'	Total/NA	Solid	5030C	
885-3292-6	BS2418 1'	Total/NA	Solid	5030C	
885-3292-7	BS24-24 1'	Total/NA	Solid	5030C	
885-3292-8	BS24-26 1'	Total/NA	Solid	5030C	
885-3292-9	BS24-27 1'	Total/NA	Solid	5030C	
885-3292-10	BS24-35 1'	Total/NA	Solid	5030C	
MB 885-3834/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-3834/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-3834/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-3292-1 MS	BS24-01 1'	Total/NA	Solid	5030C	
885-3292-1 MSD	BS24-01 1'	Total/NA	Solid	5030C	
885-3292-2 MS	BS24-03 1'	Total/NA	Solid	5030C	
885-3292-2 MSD	BS24-03 1'	Total/NA	Solid	5030C	

Analysis Batch: 4029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Total/NA	Solid	8015D	3834
885-3292-2	BS24-03 1'	Total/NA	Solid	8015D	3834
885-3292-3	BS24-04 1'	Total/NA	Solid	8015D	3834
885-3292-4	BS24-05 1'	Total/NA	Solid	8015D	3834
885-3292-5	BS24-16 1'	Total/NA	Solid	8015D	3834
885-3292-6	BS2418 1'	Total/NA	Solid	8015D	3834
885-3292-7	BS24-24 1'	Total/NA	Solid	8015D	3834
885-3292-8	BS24-26 1'	Total/NA	Solid	8015D	3834
885-3292-9	BS24-27 1'	Total/NA	Solid	8015D	3834
885-3292-10	BS24-35 1'	Total/NA	Solid	8015D	3834
MB 885-3834/1-A	Method Blank	Total/NA	Solid	8015D	3834
LCS 885-3834/2-A	Lab Control Sample	Total/NA	Solid	8015D	3834
885-3292-1 MS	BS24-01 1'	Total/NA	Solid	8015D	3834
885-3292-1 MSD	BS24-01 1'	Total/NA	Solid	8015D	3834

Analysis Batch: 4030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Total/NA	Solid	8021B	3834
885-3292-2	BS24-03 1'	Total/NA	Solid	8021B	3834
885-3292-3	BS24-04 1'	Total/NA	Solid	8021B	3834
885-3292-4	BS24-05 1'	Total/NA	Solid	8021B	3834
885-3292-5	BS24-16 1'	Total/NA	Solid	8021B	3834
885-3292-6	BS2418 1'	Total/NA	Solid	8021B	3834
885-3292-7	BS24-24 1'	Total/NA	Solid	8021B	3834
885-3292-8	BS24-26 1'	Total/NA	Solid	8021B	3834
885-3292-9	BS24-27 1'	Total/NA	Solid	8021B	3834
885-3292-10	BS24-35 1'	Total/NA	Solid	8021B	3834
MB 885-3834/1-A	Method Blank	Total/NA	Solid	8021B	3834
LCS 885-3834/3-A	Lab Control Sample	Total/NA	Solid	8021B	3834
885-3292-2 MS	BS24-03 1'	Total/NA	Solid	8021B	3834
885-3292-2 MSD	BS24-03 1'	Total/NA	Solid	8021B	3834

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

GC Semi VOA

Prep Batch: 3914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Total/NA	Solid	SHAKE	
885-3292-2	BS24-03 1'	Total/NA	Solid	SHAKE	
885-3292-3	BS24-04 1'	Total/NA	Solid	SHAKE	
885-3292-4	BS24-05 1'	Total/NA	Solid	SHAKE	
885-3292-5	BS24-16 1'	Total/NA	Solid	SHAKE	
885-3292-6	BS2418 1'	Total/NA	Solid	SHAKE	
885-3292-7	BS24-24 1'	Total/NA	Solid	SHAKE	
885-3292-8	BS24-26 1'	Total/NA	Solid	SHAKE	
885-3292-9	BS24-27 1'	Total/NA	Solid	SHAKE	
885-3292-10	BS24-35 1'	Total/NA	Solid	SHAKE	
MB 885-3914/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-3914/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 4043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Total/NA	Solid	8015D	3914
885-3292-2	BS24-03 1'	Total/NA	Solid	8015D	3914
885-3292-3	BS24-04 1'	Total/NA	Solid	8015D	3914
885-3292-4	BS24-05 1'	Total/NA	Solid	8015D	3914
885-3292-5	BS24-16 1'	Total/NA	Solid	8015D	3914
885-3292-6	BS2418 1'	Total/NA	Solid	8015D	3914
885-3292-7	BS24-24 1'	Total/NA	Solid	8015D	3914
885-3292-8	BS24-26 1'	Total/NA	Solid	8015D	3914
885-3292-9	BS24-27 1'	Total/NA	Solid	8015D	3914
885-3292-10	BS24-35 1'	Total/NA	Solid	8015D	3914
MB 885-3914/1-A	Method Blank	Total/NA	Solid	8015D	3914
LCS 885-3914/2-A	Lab Control Sample	Total/NA	Solid	8015D	3914

HPLC/IC

Leach Batch: 79933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Soluble	Solid	DI Leach	
885-3292-2	BS24-03 1'	Soluble	Solid	DI Leach	
885-3292-3	BS24-04 1'	Soluble	Solid	DI Leach	
885-3292-4	BS24-05 1'	Soluble	Solid	DI Leach	
885-3292-5	BS24-16 1'	Soluble	Solid	DI Leach	
885-3292-6	BS2418 1'	Soluble	Solid	DI Leach	
885-3292-7	BS24-24 1'	Soluble	Solid	DI Leach	
885-3292-8	BS24-26 1'	Soluble	Solid	DI Leach	
885-3292-9	BS24-27 1'	Soluble	Solid	DI Leach	
885-3292-10	BS24-35 1'	Soluble	Solid	DI Leach	
MB 880-79933/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-79933/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-79933/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
885-3292-1 MS	BS24-01 1'	Soluble	Solid	DI Leach	
885-3292-1 MSD	BS24-01 1'	Soluble	Solid	DI Leach	

Analysis Batch: 79940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-1	BS24-01 1'	Soluble	Solid	300.0	79933

QC Association Summary

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

HPLC/IC (Continued)

Analysis Batch: 79940 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-3292-2	BS24-03 1'	Soluble	Solid	300.0	79933
885-3292-3	BS24-04 1'	Soluble	Solid	300.0	79933
885-3292-4	BS24-05 1'	Soluble	Solid	300.0	79933
885-3292-5	BS24-16 1'	Soluble	Solid	300.0	79933
885-3292-6	BS2418 1'	Soluble	Solid	300.0	79933
885-3292-7	BS24-24 1'	Soluble	Solid	300.0	79933
885-3292-8	BS24-26 1'	Soluble	Solid	300.0	79933
885-3292-9	BS24-27 1'	Soluble	Solid	300.0	79933
885-3292-10	BS24-35 1'	Soluble	Solid	300.0	79933
MB 880-79933/1-A	Method Blank	Soluble	Solid	300.0	79933
LCS 880-79933/2-A	Lab Control Sample	Soluble	Solid	300.0	79933
LCSD 880-79933/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	79933
885-3292-1 MS	BS24-01 1'	Soluble	Solid	300.0	79933
885-3292-1 MSD	BS24-01 1'	Soluble	Solid	300.0	79933

Lab Chronicle

Client: Vertex
Job ID: 885-3292-1
Project/Site: Dickens 29 Federal #003H

Client Sample ID: BS24-01 1'
Lab Sample ID: 885-3292-1
Date Collected: 04/19/24 09:00
Matrix: Solid
Date Received: 04/24/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 13:18
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 13:18
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 12:16
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 15:10

Client Sample ID: BS24-03 1'
Lab Sample ID: 885-3292-2
Date Collected: 04/19/24 09:05
Matrix: Solid
Date Received: 04/24/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 14:23
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 14:23
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 12:29
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 15:28

Client Sample ID: BS24-04 1'
Lab Sample ID: 885-3292-3
Date Collected: 04/19/24 09:10
Matrix: Solid
Date Received: 04/24/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 15:28
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 15:28
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 12:42
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 15:34

Client Sample ID: BS24-05 1'
Lab Sample ID: 885-3292-4
Date Collected: 04/19/24 09:20
Matrix: Solid
Date Received: 04/24/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 15:50

Lab Chronicle

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-05 1'
Date Collected: 04/19/24 09:20
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 15:50
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 12:54
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 15:40

Client Sample ID: BS24-16 1'
Date Collected: 04/19/24 09:25
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 16:12
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 16:12
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 13:07
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 15:46

Client Sample ID: BS2418 1'
Date Collected: 04/19/24 09:30
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 16:34
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 16:34
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 13:19
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 17:19

Client Sample ID: BS24-24 1'
Date Collected: 04/19/24 09:35
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 16:55
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 16:55

Lab Chronicle

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-24 1'
Date Collected: 04/19/24 09:35
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 13:32
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 17:25

Client Sample ID: BS24-26 1'
Date Collected: 04/19/24 09:45
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 17:39
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 17:39
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 13:45
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 17:31

Client Sample ID: BS24-27 1'
Date Collected: 04/19/24 09:50
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 18:00
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 18:00
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 13:58
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 17:37

Client Sample ID: BS24-35 1'
Date Collected: 04/19/24 09:55
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8015D		1	4029	RA	EET ALB	04/26/24 18:22
Total/NA	Prep	5030C			3834	JR	EET ALB	04/24/24 13:52
Total/NA	Analysis	8021B		1	4030	RA	EET ALB	04/26/24 18:22
Total/NA	Prep	SHAKE			3914	DH	EET ALB	04/25/24 15:27
Total/NA	Analysis	8015D		1	4043	JU	EET ALB	04/26/24 14:10

Lab Chronicle

Client: Vertex
Project/Site: Dickens 29 Federal #003H

Job ID: 885-3292-1

Client Sample ID: BS24-35 1'
Date Collected: 04/19/24 09:55
Date Received: 04/24/24 07:45

Lab Sample ID: 885-3292-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Soluble	Leach	DI Leach			79933	SA	EET MID	05/03/24 13:12
Soluble	Analysis	300.0		1	79940	SMC	EET MID	05/03/24 17:43

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Vertex Job ID: 885-3292-1
Project/Site: Dickens 29 Federal #003H

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Laboratory: Eurofins Midland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

Chain-of-Custody Record

Client: **Vertex (bill to Mack Energy, Matt Buckles)**

Mailing Address: (On File)

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
Dickens 29 Federal #003H

Project #
23E-04710

Project Manager
Sally Carttar
SCarttar@vertex ca

Sampler: L Pullman
On Ice: ~~☐ Yes~~ ☐ No
# of Coolers: 2 Marty
Cooler Temp(including CF): 1.1-0=1.1 1.6-0=1.6

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

885-3292 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	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)
4 19 24	9 00	Soil	BS24-01 1'	1, 4oz jar		-1	X	X					X			
4 19 24	9 05	Soil	BS24-03 1'	1, 4oz jar		-2	X	X					X			
4 19 24	9 10	Soil	BS24-04 1'	1, 4oz jar		-3	X	X					X			
4 19 24	9 20	Soil	BS24-05 1'	1, 4oz jar		-4	X	X					X			
4 19 24	9 25	Soil	BS24-16 1'	1, 4oz jar		-5	X	X					X			
4 19 24	9 30	Soil	BS24-18 1'	1, 4oz jar		-6	X	X					X			
4 19 24	9 35	Soil	BS24-24 1'	1, 4oz jar		-7	X	X					X			
4 19 24	9 45	Soil	BS24-26 1'	1, 4oz jar		-8	X	X					X			
4 19 24	9 50	Soil	BS24-27 1'	1, 4oz jar		-9	X	X					X			
4 19 24	9 55	Soil	BS24-35 1'	1, 4oz jar		-10	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
4/23/24	1700				4/23/24	080
4/23/24	1900			courier	4/24/24	7:45

Remarks
Direct Bill to Mack Energy ATTN Matt Buckles

CC Sally Carttar (scarttar@vertex ca) for Final Report 1/1

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

5/6/2024

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-3292-1

Login Number: 3292 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Proctor, Nancy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
TCEQ Mtd 1005 soil sample was frozen/delivered for prep within 48H of sampling.	N/A	

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-3292-1

Login Number: 3292
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 05/03/24 11:22 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 17, 2024

Sally Carttar

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

RE: Dickens 29 Federal 003H OrderNo.: 2401309

Dear Sally Carttar:

Eurofins Environment Testing South Central, LLC received 23 sample(s) on 1/9/2024 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 do not hesitate to contact Eurofins Albuquerque 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-01 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 8:00:00 AM
Lab ID: 2401309-001 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/11/2024 7:53:13 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/11/2024 7:53:13 PM
Surr: DNOP	94.9	69-147		%Rec	1	1/11/2024 7:53:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/12/2024 7:01:00 PM
Surr: BFB	103	15-244		%Rec	1	1/12/2024 7:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/12/2024 7:01:00 PM
Toluene	ND	0.048		mg/Kg	1	1/12/2024 7:01:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/12/2024 7:01:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/12/2024 7:01:00 PM
Surr: 4-Bromofluorobenzene	96.6	39.1-146		%Rec	1	1/12/2024 7:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	290	60		mg/Kg	20	1/12/2024 2:57:03 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-02 0.0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/6/2024 8:20:00 AM
Lab ID: 2401309-002 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/11/2024 8:03:47 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/11/2024 8:03:47 PM
Surr: DNOP	98.1	69-147		%Rec	1	1/11/2024 8:03:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/12/2024 7:22:00 PM
Surr: BFB	105	15-244		%Rec	1	1/12/2024 7:22:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/12/2024 7:22:00 PM
Toluene	ND	0.049		mg/Kg	1	1/12/2024 7:22:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/12/2024 7:22:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/12/2024 7:22:00 PM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	1/12/2024 7:22:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	4100	150		mg/Kg	50	1/15/2024 10:17:21 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-03 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 8:40:00 AM
Lab ID: 2401309-003 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/11/2024 8:14:21 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/11/2024 8:14:21 PM
Surr: DNOP	96.0	69-147		%Rec	1	1/11/2024 8:14:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/12/2024 7:44:00 PM
Surr: BFB	108	15-244		%Rec	1	1/12/2024 7:44:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/12/2024 7:44:00 PM
Toluene	ND	0.047		mg/Kg	1	1/12/2024 7:44:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/12/2024 7:44:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	1/12/2024 7:44:00 PM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	1/12/2024 7:44:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	6500	300		mg/Kg	100	1/15/2024 10:32:31 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-03 2.0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/6/2024 9:00:00 AM
Lab ID: 2401309-004 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/11/2024 8:24:54 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/11/2024 8:24:54 PM
Surr: DNOP	90.0	69-147		%Rec	1	1/11/2024 8:24:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/12/2024 8:06:00 PM
Surr: BFB	105	15-244		%Rec	1	1/12/2024 8:06:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/12/2024 8:06:00 PM
Toluene	ND	0.049		mg/Kg	1	1/12/2024 8:06:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/12/2024 8:06:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/12/2024 8:06:00 PM
Surr: 4-Bromofluorobenzene	96.7	39.1-146		%Rec	1	1/12/2024 8:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	2000	60		mg/Kg	20	1/12/2024 3:34:16 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-03 4.0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/6/2024 9:10:00 AM
Lab ID: 2401309-005 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/11/2024 8:35:25 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/11/2024 8:35:25 PM
Surr: DNOP	93.2	69-147		%Rec	1	1/11/2024 8:35:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/12/2024 8:28:00 PM
Surr: BFB	104	15-244		%Rec	1	1/12/2024 8:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/12/2024 8:28:00 PM
Toluene	ND	0.049		mg/Kg	1	1/12/2024 8:28:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/12/2024 8:28:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/12/2024 8:28:00 PM
Surr: 4-Bromofluorobenzene	96.5	39.1-146		%Rec	1	1/12/2024 8:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	360	60		mg/Kg	20	1/12/2024 3:46:41 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-04 0.0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/6/2024 9:20:00 AM
Lab ID: 2401309-006 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/11/2024 8:45:56 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/11/2024 8:45:56 PM
Surr: DNOP	95.4	69-147		%Rec	1	1/11/2024 8:45:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/12/2024 8:50:00 PM
Surr: BFB	103	15-244		%Rec	1	1/12/2024 8:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/12/2024 8:50:00 PM
Toluene	ND	0.049		mg/Kg	1	1/12/2024 8:50:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/12/2024 8:50:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/12/2024 8:50:00 PM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	1/12/2024 8:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	920	60		mg/Kg	20	1/12/2024 3:59:06 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-05 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 9:40:00 AM
Lab ID: 2401309-007 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	50	9.6		mg/Kg	1	1/11/2024 11:32:28 PM
Motor Oil Range Organics (MRO)	93	48		mg/Kg	1	1/11/2024 11:32:28 PM
Surr: DNOP	98.9	69-147		%Rec	1	1/11/2024 11:32:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/12/2024 9:11:00 PM
Surr: BFB	105	15-244		%Rec	1	1/12/2024 9:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/12/2024 9:11:00 PM
Toluene	ND	0.046		mg/Kg	1	1/12/2024 9:11:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/12/2024 9:11:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	1/12/2024 9:11:00 PM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	1/12/2024 9:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	370	60		mg/Kg	20	1/12/2024 4:11:30 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-06 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 10:00:00 AM
Lab ID: 2401309-008 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/11/2024 9:06:40 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/11/2024 9:06:40 PM
Surr: DNOP	123	69-147		%Rec	1	1/11/2024 9:06:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/12/2024 9:33:00 PM
Surr: BFB	103	15-244		%Rec	1	1/12/2024 9:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/12/2024 9:33:00 PM
Toluene	ND	0.050		mg/Kg	1	1/12/2024 9:33:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/12/2024 9:33:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/12/2024 9:33:00 PM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	1/12/2024 9:33:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	1500	60		mg/Kg	20	1/12/2024 4:23:54 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-07 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 10:20:00 AM
Lab ID: 2401309-009 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	530	97		mg/Kg	10	1/11/2024 2:50:16 PM
Motor Oil Range Organics (MRO)	550	480		mg/Kg	10	1/11/2024 2:50:16 PM
Surr: DNOP	0	69-147	S	%Rec	10	1/11/2024 2:50:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/12/2024 9:55:00 PM
Surr: BFB	103	15-244		%Rec	1	1/12/2024 9:55:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/12/2024 9:55:00 PM
Toluene	ND	0.046		mg/Kg	1	1/12/2024 9:55:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/12/2024 9:55:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/12/2024 9:55:00 PM
Surr: 4-Bromofluorobenzene	94.3	39.1-146		%Rec	1	1/12/2024 9:55:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	700	60		mg/Kg	20	1/12/2024 4:36:19 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-08 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 10:40:00 AM
Lab ID: 2401309-010 **Matrix:** SOIL
Received Date: 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/11/2024 9:17:08 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/11/2024 9:17:08 PM
Surr: DNOP	87.9	69-147		%Rec	1	1/11/2024 9:17:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/12/2024 10:17:00 PM
Surr: BFB	104	15-244		%Rec	1	1/12/2024 10:17:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/12/2024 10:17:00 PM
Toluene	ND	0.048		mg/Kg	1	1/12/2024 10:17:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/12/2024 10:17:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/12/2024 10:17:00 PM
Surr: 4-Bromofluorobenzene	94.8	39.1-146		%Rec	1	1/12/2024 10:17:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	130	60		mg/Kg	20	1/12/2024 4:48:44 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-09 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 11:00:00 AM
Lab ID: 2401309-011 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/11/2024 9:27:36 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/11/2024 9:27:36 PM
Surr: DNOP	94.0	69-147		%Rec	1	1/11/2024 9:27:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/13/2024 1:50:02 AM
Surr: BFB	97.6	15-244		%Rec	1	1/13/2024 1:50:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	1/13/2024 1:50:02 AM
Toluene	ND	0.047		mg/Kg	1	1/13/2024 1:50:02 AM
Ethylbenzene	ND	0.047		mg/Kg	1	1/13/2024 1:50:02 AM
Xylenes, Total	ND	0.094		mg/Kg	1	1/13/2024 1:50:02 AM
Surr: 4-Bromofluorobenzene	88.8	39.1-146		%Rec	1	1/13/2024 1:50:02 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	1/12/2024 2:14:28 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-10 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/6/2024 11:20:00 AM
Lab ID: 2401309-012 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/11/2024 9:38:04 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/11/2024 9:38:04 PM
Surr: DNOP	93.1	69-147		%Rec	1	1/11/2024 9:38:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2024 2:13:44 AM
Surr: BFB	94.7	15-244		%Rec	1	1/13/2024 2:13:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/13/2024 2:13:44 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2024 2:13:44 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2024 2:13:44 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/13/2024 2:13:44 AM
Surr: 4-Bromofluorobenzene	85.3	39.1-146		%Rec	1	1/13/2024 2:13:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	1/12/2024 2:26:53 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-01 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 8:50:00 AM
Lab ID: 2401309-013 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/11/2024 9:48:31 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/11/2024 9:48:31 PM
Surr: DNOP	91.8	69-147		%Rec	1	1/11/2024 9:48:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/13/2024 2:37:32 AM
Surr: BFB	94.5	15-244		%Rec	1	1/13/2024 2:37:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/13/2024 2:37:32 AM
Toluene	ND	0.048		mg/Kg	1	1/13/2024 2:37:32 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/13/2024 2:37:32 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/13/2024 2:37:32 AM
Surr: 4-Bromofluorobenzene	84.4	39.1-146		%Rec	1	1/13/2024 2:37:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	610	60		mg/Kg	20	1/12/2024 2:39:17 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-02 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 9:00:00 AM
Lab ID: 2401309-014 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/11/2024 9:58:58 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/11/2024 9:58:58 PM
Surr: DNOP	90.0	69-147		%Rec	1	1/11/2024 9:58:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/13/2024 3:01:26 AM
Surr: BFB	96.8	15-244		%Rec	1	1/13/2024 3:01:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	1/13/2024 3:01:26 AM
Toluene	ND	0.046		mg/Kg	1	1/13/2024 3:01:26 AM
Ethylbenzene	ND	0.046		mg/Kg	1	1/13/2024 3:01:26 AM
Xylenes, Total	ND	0.092		mg/Kg	1	1/13/2024 3:01:26 AM
Surr: 4-Bromofluorobenzene	87.4	39.1-146		%Rec	1	1/13/2024 3:01:26 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	85	61		mg/Kg	20	1/12/2024 3:16:30 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-04 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 9:10:00 AM
Lab ID: 2401309-015 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/11/2024 10:09:24 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/11/2024 10:09:24 PM
Surr: DNOP	90.9	69-147		%Rec	1	1/11/2024 10:09:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/13/2024 3:25:27 AM
Surr: BFB	94.8	15-244		%Rec	1	1/13/2024 3:25:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/13/2024 3:25:27 AM
Toluene	ND	0.050		mg/Kg	1	1/13/2024 3:25:27 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/13/2024 3:25:27 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/13/2024 3:25:27 AM
Surr: 4-Bromofluorobenzene	86.0	39.1-146		%Rec	1	1/13/2024 3:25:27 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	500	60		mg/Kg	20	1/12/2024 4:18:33 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-05 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 9:20:00 AM
Lab ID: 2401309-016 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/11/2024 10:19:48 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/11/2024 10:19:48 PM
Surr: DNOP	93.3	69-147		%Rec	1	1/11/2024 10:19:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2024 3:49:26 AM
Surr: BFB	93.7	15-244		%Rec	1	1/13/2024 3:49:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/13/2024 3:49:26 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2024 3:49:26 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2024 3:49:26 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/13/2024 3:49:26 AM
Surr: 4-Bromofluorobenzene	85.2	39.1-146		%Rec	1	1/13/2024 3:49:26 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	1/12/2024 4:30:57 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-06 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 9:30:00 AM
Lab ID: 2401309-017 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/11/2024 10:30:13 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/11/2024 10:30:13 PM
Surr: DNOP	94.1	69-147		%Rec	1	1/11/2024 10:30:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2024 4:13:21 AM
Surr: BFB	94.2	15-244		%Rec	1	1/13/2024 4:13:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/13/2024 4:13:21 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2024 4:13:21 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2024 4:13:21 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/13/2024 4:13:21 AM
Surr: 4-Bromofluorobenzene	85.7	39.1-146		%Rec	1	1/13/2024 4:13:21 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	1/12/2024 4:43:21 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-07 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 9:40:00 AM
Lab ID: 2401309-018 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

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	1/11/2024 10:40:37 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/11/2024 10:40:37 PM
Surr: DNOP	97.4	69-147		%Rec	1	1/11/2024 10:40:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/13/2024 4:37:10 AM
Surr: BFB	96.3	15-244		%Rec	1	1/13/2024 4:37:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/13/2024 4:37:10 AM
Toluene	ND	0.049		mg/Kg	1	1/13/2024 4:37:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/13/2024 4:37:10 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/13/2024 4:37:10 AM
Surr: 4-Bromofluorobenzene	87.7	39.1-146		%Rec	1	1/13/2024 4:37:10 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	120	61		mg/Kg	20	1/12/2024 4:55:46 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-08 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 9:50:00 AM
Lab ID: 2401309-019 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/11/2024 10:51:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/11/2024 10:51:01 PM
Surr: DNOP	95.4	69-147		%Rec	1	1/11/2024 10:51:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/13/2024 5:00:54 AM
Surr: BFB	95.7	15-244		%Rec	1	1/13/2024 5:00:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/13/2024 5:00:54 AM
Toluene	ND	0.048		mg/Kg	1	1/13/2024 5:00:54 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/13/2024 5:00:54 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/13/2024 5:00:54 AM
Surr: 4-Bromofluorobenzene	86.7	39.1-146		%Rec	1	1/13/2024 5:00:54 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	1/12/2024 5:08:11 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-09 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 10:00:00 AM
Lab ID: 2401309-020 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/11/2024 11:01:24 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/11/2024 11:01:24 PM
Surr: DNOP	84.6	69-147		%Rec	1	1/11/2024 11:01:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/13/2024 5:24:36 AM
Surr: BFB	95.8	15-244		%Rec	1	1/13/2024 5:24:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/13/2024 5:24:36 AM
Toluene	ND	0.050		mg/Kg	1	1/13/2024 5:24:36 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/13/2024 5:24:36 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/13/2024 5:24:36 AM
Surr: 4-Bromofluorobenzene	87.5	39.1-146		%Rec	1	1/13/2024 5:24:36 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	160	60		mg/Kg	20	1/12/2024 5:20:36 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-10 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 10:10:00 AM
Lab ID: 2401309-021 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/11/2024 11:11:45 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/11/2024 11:11:45 PM
Surr: DNOP	96.2	69-147		%Rec	1	1/11/2024 11:11:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/13/2024 6:12:02 AM
Surr: BFB	94.6	15-244		%Rec	1	1/13/2024 6:12:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/13/2024 6:12:02 AM
Toluene	ND	0.047		mg/Kg	1	1/13/2024 6:12:02 AM
Ethylbenzene	ND	0.047		mg/Kg	1	1/13/2024 6:12:02 AM
Xylenes, Total	0.11	0.095		mg/Kg	1	1/13/2024 6:12:02 AM
Surr: 4-Bromofluorobenzene	87.0	39.1-146		%Rec	1	1/13/2024 6:12:02 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	1/12/2024 5:33:00 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-11 0.0'
Project: Dickens 29 Federal 003H
Collection Date: 1/7/2024 10:30:00 AM
Lab ID: 2401309-022 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	2200	98		mg/Kg	10	1/11/2024 3:00:52 PM
Motor Oil Range Organics (MRO)	2200	490		mg/Kg	10	1/11/2024 3:00:52 PM
Surr: DNOP	0	69-147	S	%Rec	10	1/11/2024 3:00:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/13/2024 6:35:55 AM
Surr: BFB	91.2	15-244		%Rec	1	1/13/2024 6:35:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	1/13/2024 6:35:55 AM
Toluene	ND	0.047		mg/Kg	1	1/13/2024 6:35:55 AM
Ethylbenzene	ND	0.047		mg/Kg	1	1/13/2024 6:35:55 AM
Xylenes, Total	ND	0.093		mg/Kg	1	1/13/2024 6:35:55 AM
Surr: 4-Bromofluorobenzene	82.6	39.1-146		%Rec	1	1/13/2024 6:35:55 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	350	60		mg/Kg	20	1/12/2024 5:45:25 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 **2401309**
Date Reported: **1/17/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-11 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/7/2024 10:45:00 AM
Lab ID: 2401309-023 **Matrix:** SOIL **Received Date:** 1/9/2024 7:30:00 AM

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	1/11/2024 11:22:07 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/11/2024 11:22:07 PM
Surr: DNOP	101	69-147		%Rec	1	1/11/2024 11:22:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/13/2024 6:59:44 AM
Surr: BFB	94.3	15-244		%Rec	1	1/13/2024 6:59:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/13/2024 6:59:44 AM
Toluene	ND	0.048		mg/Kg	1	1/13/2024 6:59:44 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/13/2024 6:59:44 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/13/2024 6:59:44 AM
Surr: 4-Bromofluorobenzene	87.0	39.1-146		%Rec	1	1/13/2024 6:59:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	890	61		mg/Kg	20	1/12/2024 5:57:49 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#: **2401309**

17-Jan-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **MB-79881**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **79881**	RunNo: **102429**								
Prep Date: **1/12/2024**	Analysis Date: **1/12/2024**	SeqNo: **3783634**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-79881**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **79881**	RunNo: **102429**								
Prep Date: **1/12/2024**	Analysis Date: **1/12/2024**	SeqNo: **3783635**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			

Sample ID: **MB-79876**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **79876**	RunNo: **102433**								
Prep Date: **1/12/2024**	Analysis Date: **1/12/2024**	SeqNo: **3783707**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-79876**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **79876**	RunNo: **102433**								
Prep Date: **1/12/2024**	Analysis Date: **1/12/2024**	SeqNo: **3783708**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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#: **2401309**

17-Jan-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **LCS-79853** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **79853** RunNo: **102396**
Prep Date: **1/11/2024** Analysis Date: **1/11/2024** SeqNo: **3781589** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.8	61.9	130			
Surr: DNOP	4.7		5.000		93.8	69	147			

Sample ID: **LCS-79857** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **79857** RunNo: **102396**
Prep Date: **1/11/2024** Analysis Date: **1/11/2024** SeqNo: **3781590** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.8	61.9	130			
Surr: DNOP	5.0		5.000		99.3	69	147			

Sample ID: **MB-79853** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **79853** RunNo: **102396**
Prep Date: **1/11/2024** Analysis Date: **1/11/2024** SeqNo: **3781591** 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		90.5	69	147			

Sample ID: **MB-79857** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **79857** RunNo: **102396**
Prep Date: **1/11/2024** Analysis Date: **1/11/2024** SeqNo: **3781592** 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			

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#: **2401309**

17-Jan-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **lcs-79852**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/12/2024**	SeqNo: **3782079** 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	94.6	70	130			
Surr: BFB	2100		1000		205	15	244			

Sample ID: **mb-79852**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/12/2024**	SeqNo: **3782080** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.4	15	244			

Sample ID: **lcs-79842**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **79842**	RunNo: **102422**
Prep Date: **1/10/2024**	Analysis Date: **1/12/2024**	SeqNo: **3782992** 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	90.6	70	130			
Surr: BFB	2200		1000		222	15	244			

Sample ID: **mb-79842**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **79842**	RunNo: **102422**
Prep Date: **1/10/2024**	Analysis Date: **1/12/2024**	SeqNo: **3782993** 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	1100		1000		105	15	244			

Sample ID: **2401309-011ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-09 0.0'**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/13/2024**	SeqNo: **3783439** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.7	23.61	0	98.4	70	130			
Surr: BFB	2000		944.3		214	15	244			

Sample ID: **2401309-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-09 0.0'**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/13/2024**	SeqNo: **3783440** 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#: **2401309**

17-Jan-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **2401309-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-09 0.0'**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/13/2024**	SeqNo: **3783440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.7	23.50	0	96.7	70	130	2.28	20	
Surr: BFB	2000		939.8		216	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#: **2401309**

17-Jan-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **LCS-79852**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/12/2024**	SeqNo: **3782082** 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	91.0	70	130			
Toluene	0.91	0.050	1.000	0	91.4	70	130			
Ethylbenzene	0.93	0.050	1.000	0	92.9	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.9	70	130			
Surr: 4-Bromofluorobenzene	0.93		1.000		92.7	39.1	146			

Sample ID: **mb-79852**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/12/2024**	SeqNo: **3782083** 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	0.89		1.000		89.3	39.1	146			

Sample ID: **lcs-79842**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **79842**	RunNo: **102422**
Prep Date: **1/10/2024**	Analysis Date: **1/12/2024**	SeqNo: **3783216** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.4	70	130			
Toluene	0.97	0.050	1.000	0	96.9	70	130			
Ethylbenzene	0.99	0.050	1.000	0	98.8	70	130			
Xylenes, Total	3.0	0.10	3.000	0	99.4	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	39.1	146			

Sample ID: **mb-79842**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **79842**	RunNo: **102422**
Prep Date: **1/10/2024**	Analysis Date: **1/12/2024**	SeqNo: **3783217** 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	0.96		1.000		95.7	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#: **2401309**

17-Jan-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **2401309-012ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH24-10 0.0'**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/13/2024**	SeqNo: **3783471** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9690	0	91.1	70	130			
Toluene	0.90	0.048	0.9690	0	92.6	70	130			
Ethylbenzene	0.92	0.048	0.9690	0	94.5	70	130			
Xylenes, Total	2.7	0.097	2.907	0	94.2	70	130			
Surr: 4-Bromofluorobenzene	0.85		0.9690		87.8	39.1	146			

Sample ID: **2401309-012amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH24-10 0.0'**	Batch ID: **79852**	RunNo: **102406**
Prep Date: **1/11/2024**	Analysis Date: **1/13/2024**	SeqNo: **3783472** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9737	0	90.3	70	130	0.408	20	
Toluene	0.90	0.049	0.9737	0	92.8	70	130	0.680	20	
Ethylbenzene	0.91	0.049	0.9737	0	94.0	70	130	0.0768	20	
Xylenes, Total	2.8	0.097	2.921	0	94.8	70	130	1.12	20	
Surr: 4-Bromofluorobenzene	0.86		0.9737		88.4	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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
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** Work Order Number: **2401309** RcptNo: **1**

Received By: **Juan Rojas** **1/9/2024 7:30:00 AM**

Completed By: **Cheyenne Cason** **1/9/2024 8:36:08 AM**

Reviewed By: 1/9/24

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: JR 1/9/24

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	0.3	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: Vertex (Mack Energy)

Mailing Address: On File

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: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carttar

Sampler:

On Ice: ☒ Yes ☐ No

# of Coolers: 1 Yoni

Cooler Temp(including CF): 0.4-0.1=0.3(°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. 2401309	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)
1-6-24	0800	Soil	BH24-01 0.0'	4oz	ICE	001										
	0820		BH24-02 0.0'			002										
	0840		BH24-03 0.0'			003										
	0900		BH24-03 2.0'			004										
	0910		BH24-03 4.0'			005										
	0920		BH24-04 0.0'			006										
	0940		BH24-05 0.0'			007										
	1000		BH24-06 0.0'			008										
	1020		BH24-07 0.0'			009										
	1040		BH24-08 0.0'			010										
	1100		BH24-09 0.0'			011										
	1120		BH24-10 0.0'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					1/8/24	1030
1/8/24	1900			Courier	1/9/24	7:30

Remarks: CC: scarttar@vertex.ca

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

Chain-of-Custody Record

Client: Vertex (Mack Energy)

Mailing Address: On File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 day
☒ Standard ☐ Rush

Project Name: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carttar

Sampler:
On Ice: ☒ Yes ☐ No
# of Coolers: 1 Yoai
Cooler Temp(Including CF): 0.4-0.1=0.3 (°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. 2401309	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)					
1-7-24	0850	Soil	BH24-01	2'	4oz	ICE	013	✓	✓					✓								
↓	0900	↓	BH24-02	2'	↓	↓	014	↓	↓					↓								
↓	0910	↓	BH24-04	2'	↓	↓	~~016~~ 015	↓	↓					↓								
↓	0920	↓	BH24-05	2'	↓	↓	016	↓	↓					↓								
↓	0930	↓	BH24-06	2'	↓	↓	017	↓	↓					↓								
↓	0940	↓	BH24-07	2'	↓	↓	018	↓	↓					↓								
↓	0950	↓	BH24-08	2'	↓	↓	019	↓	↓					↓								
↓	1000	↓	BH24-09	2'	↓	↓	020	↓	↓					↓								
↓	1010	↓	BH24-10	2'	↓	↓	021	↓	↓					↓								
↓	1030	↓	BH24-11	0.0'	↓	↓	022	↓	↓					↓								
↓	1045	↓	BH24-11	2'	↓	↓	023	↓	↓					↓								

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			[signature]		1/8/24	1030
1/8/24	1900	[signature]	[signature]	courier	1/9/24	7:30

Remarks: CC: scarttar@vertex.ca

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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 02, 2024

Sally Carttar

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

RE: Dickens 29 Federal 003H OrderNo.: 2401883

Dear Sally Carttar:

Eurofins Environment Testing South Central, LLC received 36 sample(s) on 1/23/2024 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 do not hesitate to contact Eurofins Albuquerque 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-12 0'
Project: Dickens 29 Federal 003H
Collection Date: 1/17/2024 11:00:00 AM
Lab ID: 2401883-001 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	15	9.6		mg/Kg	1	1/24/2024 9:49:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2024 9:49:01 PM
Surr: DNOP	90.0	69-147		%Rec	1	1/24/2024 9:49:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/24/2024 7:46:00 PM
Surr: BFB	103	15-244		%Rec	1	1/24/2024 7:46:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	1/24/2024 7:46:00 PM
Toluene	ND	0.050		mg/Kg	1	1/24/2024 7:46:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/24/2024 7:46:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/24/2024 7:46:00 PM
Surr: 4-Bromofluorobenzene	93.3	39.1-146		%Rec	1	1/24/2024 7:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	760	60		mg/Kg	20	1/24/2024 11:48:14 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-12 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/17/2024 11:10:00 AM
Lab ID: 2401883-002 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/24/2024 10:00:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/24/2024 10:00:52 PM
Surr: DNOP	93.5	69-147		%Rec	1	1/24/2024 10:00:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2024 8:30:00 PM
Surr: BFB	102	15-244		%Rec	1	1/24/2024 8:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	1/24/2024 8:30:00 PM
Toluene	ND	0.048		mg/Kg	1	1/24/2024 8:30:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2024 8:30:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/24/2024 8:30:00 PM
Surr: 4-Bromofluorobenzene	95.5	39.1-146		%Rec	1	1/24/2024 8:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	650	60		mg/Kg	20	1/25/2024 12:03:22 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-13 0'
Project: Dickens 29 Federal 003H
Collection Date: 1/17/2024 11:20:00 AM
Lab ID: 2401883-003 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	12	9.6		mg/Kg	1	1/24/2024 10:12:40 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2024 10:12:40 PM
Surr: DNOP	82.2	69-147		%Rec	1	1/24/2024 10:12:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2024 8:52:00 PM
Surr: BFB	104	15-244		%Rec	1	1/24/2024 8:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	1/24/2024 8:52:00 PM
Toluene	ND	0.048		mg/Kg	1	1/24/2024 8:52:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2024 8:52:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/24/2024 8:52:00 PM
Surr: 4-Bromofluorobenzene	95.0	39.1-146		%Rec	1	1/24/2024 8:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	750	60		mg/Kg	20	1/25/2024 12:18:31 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-13 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/17/2024 11:30:00 AM
Lab ID: 2401883-004 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/24/2024 10:24:28 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2024 10:24:28 PM
Surr: DNOP	89.0	69-147		%Rec	1	1/24/2024 10:24:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/24/2024 9:14:00 PM
Surr: BFB	105	15-244		%Rec	1	1/24/2024 9:14:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	1/24/2024 9:14:00 PM
Toluene	ND	0.046		mg/Kg	1	1/24/2024 9:14:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/24/2024 9:14:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/24/2024 9:14:00 PM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	1/24/2024 9:14:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	89	60		mg/Kg	20	1/25/2024 12:33:40 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-14 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/17/2024 11:40:00 AM
Lab ID: 2401883-005 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/24/2024 10:36:13 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/24/2024 10:36:13 PM
Surr: DNOP	85.3	69-147		%Rec	1	1/24/2024 10:36:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/24/2024 9:36:00 PM
Surr: BFB	105	15-244		%Rec	1	1/24/2024 9:36:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	1/24/2024 9:36:00 PM
Toluene	ND	0.046		mg/Kg	1	1/24/2024 9:36:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/24/2024 9:36:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/24/2024 9:36:00 PM
Surr: 4-Bromofluorobenzene	94.7	39.1-146		%Rec	1	1/24/2024 9:36:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	380	60		mg/Kg	20	1/25/2024 12:48:49 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-14 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/17/2024 11:50:00 AM
Lab ID: 2401883-006 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/24/2024 10:48:02 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/24/2024 10:48:02 PM
Surr: DNOP	83.0	69-147		%Rec	1	1/24/2024 10:48:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2024 9:57:00 PM
Surr: BFB	103	15-244		%Rec	1	1/24/2024 9:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	1/24/2024 9:57:00 PM
Toluene	ND	0.049		mg/Kg	1	1/24/2024 9:57:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2024 9:57:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2024 9:57:00 PM
Surr: 4-Bromofluorobenzene	95.1	39.1-146		%Rec	1	1/24/2024 9:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	210	60		mg/Kg	20	1/25/2024 1:34:16 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-15 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/17/2024 12:00:00 PM
Lab ID: 2401883-007 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	34	8.9		mg/Kg	1	1/24/2024 10:59:49 PM
Motor Oil Range Organics (MRO)	100	44		mg/Kg	1	1/24/2024 10:59:49 PM
Surr: DNOP	88.2	69-147		%Rec	1	1/24/2024 10:59:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/24/2024 10:19:00 PM
Surr: BFB	103	15-244		%Rec	1	1/24/2024 10:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	1/24/2024 10:19:00 PM
Toluene	ND	0.047		mg/Kg	1	1/24/2024 10:19:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/24/2024 10:19:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/24/2024 10:19:00 PM
Surr: 4-Bromofluorobenzene	96.5	39.1-146		%Rec	1	1/24/2024 10:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1200	60		mg/Kg	20	1/25/2024 1:49:26 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-15 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/17/2024 12:10:00 PM
Lab ID: 2401883-008 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/24/2024 11:11:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/24/2024 11:11:34 PM
Surr: DNOP	83.5	69-147		%Rec	1	1/24/2024 11:11:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2024 10:41:00 PM
Surr: BFB	99.7	15-244		%Rec	1	1/24/2024 10:41:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	1/24/2024 10:41:00 PM
Toluene	ND	0.049		mg/Kg	1	1/24/2024 10:41:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2024 10:41:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/24/2024 10:41:00 PM
Surr: 4-Bromofluorobenzene	94.0	39.1-146		%Rec	1	1/24/2024 10:41:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	270	60		mg/Kg	20	1/25/2024 2:04:35 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-16 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 9:00:00 AM
Lab ID: 2401883-009 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/24/2024 11:23:26 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/24/2024 11:23:26 PM
Surr: DNOP	91.7	69-147		%Rec	1	1/24/2024 11:23:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/24/2024 11:03:00 PM
Surr: BFB	103	15-244		%Rec	1	1/24/2024 11:03:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	1/24/2024 11:03:00 PM
Toluene	ND	0.048		mg/Kg	1	1/24/2024 11:03:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/24/2024 11:03:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/24/2024 11:03:00 PM
Surr: 4-Bromofluorobenzene	95.7	39.1-146		%Rec	1	1/24/2024 11:03:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1500	60		mg/Kg	20	1/25/2024 2:19:45 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-16 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 9:30:00 AM
Lab ID: 2401883-010 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/24/2024 11:35:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/24/2024 11:35:11 PM
Surr: DNOP	86.0	69-147		%Rec	1	1/24/2024 11:35:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/24/2024 11:25:00 PM
Surr: BFB	104	15-244		%Rec	1	1/24/2024 11:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	1/24/2024 11:25:00 PM
Toluene	ND	0.049		mg/Kg	1	1/24/2024 11:25:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/24/2024 11:25:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/24/2024 11:25:00 PM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	1/24/2024 11:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	80	60		mg/Kg	20	1/25/2024 2:34:53 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-17 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 9:40:00 AM
Lab ID: 2401883-011 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/24/2024 11:46:56 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/24/2024 11:46:56 PM
Surr: DNOP	89.9	69-147		%Rec	1	1/24/2024 11:46:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/24/2024 11:47:00 PM
Surr: BFB	97.5	15-244		%Rec	1	1/24/2024 11:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	1/24/2024 11:47:00 PM
Toluene	ND	0.046		mg/Kg	1	1/24/2024 11:47:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/24/2024 11:47:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	1/24/2024 11:47:00 PM
Surr: 4-Bromofluorobenzene	93.9	39.1-146		%Rec	1	1/24/2024 11:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	950	60		mg/Kg	20	1/25/2024 2:50:02 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-17 2'
Project: Dickens 29 Federal 003H
Collection Date: 1/18/2024 10:00:00 AM
Lab ID: 2401883-012 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/25/2024 4:33:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/25/2024 4:33:34 PM
Surr: DNOP	87.4	69-147		%Rec	1	1/25/2024 4:33:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/26/2024 4:55:00 PM
Surr: BFB	106	15-244		%Rec	1	1/26/2024 4:55:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 4:55:00 PM
Toluene	ND	0.048		mg/Kg	1	1/26/2024 4:55:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/26/2024 4:55:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/26/2024 4:55:00 PM
Surr: 4-Bromofluorobenzene	99.4	39.1-146		%Rec	1	1/26/2024 4:55:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	150	60		mg/Kg	20	1/25/2024 3:15:53 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-18 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 10:10:00 AM
Lab ID: 2401883-013 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	1/25/2024 5:10:05 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/25/2024 5:10:05 PM
Surr: DNOP	88.6	69-147		%Rec	1	1/25/2024 5:10:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/26/2024 6:01:00 PM
Surr: BFB	104	15-244		%Rec	1	1/26/2024 6:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 6:01:00 PM
Toluene	ND	0.047		mg/Kg	1	1/26/2024 6:01:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/26/2024 6:01:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/26/2024 6:01:00 PM
Surr: 4-Bromofluorobenzene	96.5	39.1-146		%Rec	1	1/26/2024 6:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	61		mg/Kg	20	1/25/2024 4:01:22 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-18 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 10:20:00 AM
Lab ID: 2401883-014 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/25/2024 5:22:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/25/2024 5:22:34 PM
Surr: DNOP	88.1	69-147		%Rec	1	1/25/2024 5:22:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 7:07:00 PM
Surr: BFB	106	15-244		%Rec	1	1/26/2024 7:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 7:07:00 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 7:07:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 7:07:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/26/2024 7:07:00 PM
Surr: 4-Bromofluorobenzene	99.8	39.1-146		%Rec	1	1/26/2024 7:07:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/25/2024 4:16:32 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-19 0'
Project: Dickens 29 Federal 003H
Collection Date: 1/18/2024 10:30:00 AM
Lab ID: 2401883-015 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/25/2024 5:34:57 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/25/2024 5:34:57 PM
Surr: DNOP	94.0	69-147		%Rec	1	1/25/2024 5:34:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/26/2024 7:29:00 PM
Surr: BFB	104	15-244		%Rec	1	1/26/2024 7:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/26/2024 7:29:00 PM
Toluene	ND	0.046		mg/Kg	1	1/26/2024 7:29:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/26/2024 7:29:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/26/2024 7:29:00 PM
Surr: 4-Bromofluorobenzene	97.1	39.1-146		%Rec	1	1/26/2024 7:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	240	60		mg/Kg	20	1/25/2024 4:31:41 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-19 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 10:40:00 AM
Lab ID: 2401883-016 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/25/2024 5:47:09 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/25/2024 5:47:09 PM
Surr: DNOP	86.2	69-147		%Rec	1	1/25/2024 5:47:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/26/2024 7:51:00 PM
Surr: BFB	103	15-244		%Rec	1	1/26/2024 7:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 7:51:00 PM
Toluene	ND	0.050		mg/Kg	1	1/26/2024 7:51:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/26/2024 7:51:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/26/2024 7:51:00 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	1/26/2024 7:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	280	60		mg/Kg	20	1/25/2024 4:46:51 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-20 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 11:00:00 AM
Lab ID: 2401883-017 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/25/2024 5:59:17 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/25/2024 5:59:17 PM
Surr: DNOP	99.8	69-147		%Rec	1	1/25/2024 5:59:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/26/2024 8:13:00 PM
Surr: BFB	101	15-244		%Rec	1	1/26/2024 8:13:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/26/2024 8:13:00 PM
Toluene	ND	0.047		mg/Kg	1	1/26/2024 8:13:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/26/2024 8:13:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	1/26/2024 8:13:00 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	1/26/2024 8:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	1800	60		mg/Kg	20	1/25/2024 5:02:00 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-20 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 11:20:00 AM
Lab ID: 2401883-018 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/25/2024 6:11:22 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/25/2024 6:11:22 PM
Surr: DNOP	82.3	69-147		%Rec	1	1/25/2024 6:11:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/26/2024 8:35:00 PM
Surr: BFB	106	15-244		%Rec	1	1/26/2024 8:35:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/26/2024 8:35:00 PM
Toluene	ND	0.046		mg/Kg	1	1/26/2024 8:35:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/26/2024 8:35:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	1/26/2024 8:35:00 PM
Surr: 4-Bromofluorobenzene	99.8	39.1-146		%Rec	1	1/26/2024 8:35:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	120	60		mg/Kg	20	1/25/2024 5:47:26 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-21 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 11:30:00 AM
Lab ID: 2401883-019 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/25/2024 6:35:18 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/25/2024 6:35:18 PM
Surr: DNOP	92.2	69-147		%Rec	1	1/25/2024 6:35:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/26/2024 8:57:00 PM
Surr: BFB	104	15-244		%Rec	1	1/26/2024 8:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 8:57:00 PM
Toluene	ND	0.048		mg/Kg	1	1/26/2024 8:57:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/26/2024 8:57:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/26/2024 8:57:00 PM
Surr: 4-Bromofluorobenzene	96.1	39.1-146		%Rec	1	1/26/2024 8:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	2800	150		mg/Kg	50	1/29/2024 10:45:26 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-21 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 11:40:00 AM
Lab ID: 2401883-020 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/25/2024 6:47:21 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/25/2024 6:47:21 PM
Surr: DNOP	86.2	69-147		%Rec	1	1/25/2024 6:47:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/26/2024 9:19:00 PM
Surr: BFB	106	15-244		%Rec	1	1/26/2024 9:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/26/2024 9:19:00 PM
Toluene	ND	0.046		mg/Kg	1	1/26/2024 9:19:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/26/2024 9:19:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	1/26/2024 9:19:00 PM
Surr: 4-Bromofluorobenzene	99.4	39.1-146		%Rec	1	1/26/2024 9:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/25/2024 6:17:45 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-22 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 12:00:00 PM
Lab ID: 2401883-021 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	1/25/2024 6:59:19 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/25/2024 6:59:19 PM
Surr: DNOP	89.6	69-147		%Rec	1	1/25/2024 6:59:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 9:41:00 PM
Surr: BFB	102	15-244		%Rec	1	1/26/2024 9:41:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 9:41:00 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 9:41:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 9:41:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/26/2024 9:41:00 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	1/26/2024 9:41:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	71	60		mg/Kg	20	1/25/2024 6:32:54 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-22 2'
Project: Dickens 29 Federal 003H
Collection Date: 1/18/2024 12:20:00 PM
Lab ID: 2401883-022 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/25/2024 7:11:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/25/2024 7:11:14 PM
Surr: DNOP	85.3	69-147		%Rec	1	1/25/2024 7:11:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/26/2024 10:25:00 PM
Surr: BFB	105	15-244		%Rec	1	1/26/2024 10:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/29/2024 5:41:00 PM
Toluene	ND	0.050		mg/Kg	1	1/29/2024 5:41:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/29/2024 5:41:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/29/2024 5:41:00 PM
Surr: 4-Bromofluorobenzene	95.5	39.1-146		%Rec	1	1/29/2024 5:41:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	76	60		mg/Kg	20	1/25/2024 6:48:03 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-23 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 1:00:00 PM
Lab ID: 2401883-023 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/25/2024 7:23:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/25/2024 7:23:11 PM
Surr: DNOP	95.4	69-147		%Rec	1	1/25/2024 7:23:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/26/2024 10:47:00 PM
Surr: BFB	102	15-244		%Rec	1	1/26/2024 10:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/29/2024 6:03:00 PM
Toluene	ND	0.047		mg/Kg	1	1/29/2024 6:03:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/29/2024 6:03:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	1/29/2024 6:03:00 PM
Surr: 4-Bromofluorobenzene	96.8	39.1-146		%Rec	1	1/29/2024 6:03:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	63	60		mg/Kg	20	1/25/2024 7:03:13 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-23 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/18/2024 1:30:00 PM
Lab ID: 2401883-024 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/25/2024 7:35:03 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/25/2024 7:35:03 PM
Surr: DNOP	82.4	69-147		%Rec	1	1/25/2024 7:35:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/26/2024 11:09:00 PM
Surr: BFB	105	15-244		%Rec	1	1/26/2024 11:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	1/29/2024 6:24:00 PM
Toluene	ND	0.050		mg/Kg	1	1/29/2024 6:24:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/29/2024 6:24:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/29/2024 6:24:00 PM
Surr: 4-Bromofluorobenzene	97.1	39.1-146		%Rec	1	1/29/2024 6:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	310	60		mg/Kg	20	1/25/2024 7:18:22 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-24 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 9:00:00 AM
Lab ID: 2401883-025 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/25/2024 7:46:56 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/25/2024 7:46:56 PM
Surr: DNOP	88.1	69-147		%Rec	1	1/25/2024 7:46:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/26/2024 11:31:00 PM
Surr: BFB	105	15-244		%Rec	1	1/26/2024 11:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/29/2024 6:46:00 PM
Toluene	ND	0.047		mg/Kg	1	1/29/2024 6:46:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/29/2024 6:46:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/29/2024 6:46:00 PM
Surr: 4-Bromofluorobenzene	98.2	39.1-146		%Rec	1	1/29/2024 6:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	850	60		mg/Kg	20	1/25/2024 7:33:32 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-24 2'
Project: Dickens 29 Federal 003H
Collection Date: 1/19/2024 9:10:00 AM
Lab ID: 2401883-026 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/25/2024 7:58:48 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/25/2024 7:58:48 PM
Surr: DNOP	87.4	69-147		%Rec	1	1/25/2024 7:58:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 11:52:00 PM
Surr: BFB	102	15-244		%Rec	1	1/26/2024 11:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/29/2024 7:08:00 PM
Toluene	ND	0.049		mg/Kg	1	1/29/2024 7:08:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/29/2024 7:08:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/29/2024 7:08:00 PM
Surr: 4-Bromofluorobenzene	96.2	39.1-146		%Rec	1	1/29/2024 7:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	240	60		mg/Kg	20	1/25/2024 7:48:41 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-25 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 9:20:00 AM
Lab ID: 2401883-027 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/25/2024 8:10:45 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/25/2024 8:10:45 PM
Surr: DNOP	92.5	69-147		%Rec	1	1/25/2024 8:10:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/27/2024 12:14:00 AM
Surr: BFB	100	15-244		%Rec	1	1/27/2024 12:14:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	1/29/2024 7:30:00 PM
Toluene	ND	0.046		mg/Kg	1	1/29/2024 7:30:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	1/29/2024 7:30:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/29/2024 7:30:00 PM
Surr: 4-Bromofluorobenzene	98.2	39.1-146		%Rec	1	1/29/2024 7:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 11:30:50 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-25 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 9:30:00 AM
Lab ID: 2401883-028 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/25/2024 8:22:39 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/25/2024 8:22:39 PM
Surr: DNOP	86.4	69-147		%Rec	1	1/25/2024 8:22:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/27/2024 12:36:00 AM
Surr: BFB	106	15-244		%Rec	1	1/27/2024 12:36:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/29/2024 7:52:00 PM
Toluene	ND	0.048		mg/Kg	1	1/29/2024 7:52:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/29/2024 7:52:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/29/2024 7:52:00 PM
Surr: 4-Bromofluorobenzene	98.9	39.1-146		%Rec	1	1/29/2024 7:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 11:45:59 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-27 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 9:40:00 AM
Lab ID: 2401883-029 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/25/2024 8:34:31 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/25/2024 8:34:31 PM
Surr: DNOP	83.7	69-147		%Rec	1	1/25/2024 8:34:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/27/2024 12:58:00 AM
Surr: BFB	105	15-244		%Rec	1	1/27/2024 12:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/29/2024 8:13:00 PM
Toluene	ND	0.047		mg/Kg	1	1/29/2024 8:13:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/29/2024 8:13:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/29/2024 8:13:00 PM
Surr: 4-Bromofluorobenzene	99.1	39.1-146		%Rec	1	1/29/2024 8:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 12:01:09 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-27 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 10:00:00 AM
Lab ID: 2401883-030 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/25/2024 8:46:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/25/2024 8:46:26 PM
Surr: DNOP	84.9	69-147		%Rec	1	1/25/2024 8:46:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/27/2024 1:20:00 AM
Surr: BFB	104	15-244		%Rec	1	1/27/2024 1:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/29/2024 8:35:00 PM
Toluene	ND	0.048		mg/Kg	1	1/29/2024 8:35:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/29/2024 8:35:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/29/2024 8:35:00 PM
Surr: 4-Bromofluorobenzene	98.3	39.1-146		%Rec	1	1/29/2024 8:35:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	99	60		mg/Kg	20	1/29/2024 12:16:18 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-28 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 10:10:00 AM
Lab ID: 2401883-031 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/25/2024 8:58:15 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/25/2024 8:58:15 PM
Surr: DNOP	86.3	69-147		%Rec	1	1/25/2024 8:58:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/27/2024 1:42:00 AM
Surr: BFB	104	15-244		%Rec	1	1/27/2024 1:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	1/29/2024 8:57:00 PM
Toluene	ND	0.049		mg/Kg	1	1/29/2024 8:57:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/29/2024 8:57:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/29/2024 8:57:00 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	1/29/2024 8:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	5100	150		mg/Kg	50	1/30/2024 11:48:40 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-28 2'
Project: Dickens 29 Federal 003H
Collection Date: 1/19/2024 10:20:00 AM
Lab ID: 2401883-032 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	1/26/2024 11:23:00 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/26/2024 11:23:00 AM
Surr: DNOP	97.5	69-147		%Rec	1	1/26/2024 11:23:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 2:00:54 PM
Surr: BFB	99.4	15-244		%Rec	1	1/26/2024 2:00:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 2:00:54 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 2:00:54 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 2:00:54 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/26/2024 2:00:54 PM
Surr: 4-Bromofluorobenzene	88.9	39.1-146		%Rec	1	1/26/2024 2:00:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	300	60		mg/Kg	20	1/29/2024 12:46:38 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-29 0'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 10:30:00 AM
Lab ID: 2401883-033 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/26/2024 11:58:51 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/26/2024 11:58:51 AM
Surr: DNOP	90.7	69-147		%Rec	1	1/26/2024 11:58:51 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 3:12:10 PM
Surr: BFB	102	15-244		%Rec	1	1/26/2024 3:12:10 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 3:12:10 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 3:12:10 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 3:12:10 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/26/2024 3:12:10 PM
Surr: 4-Bromofluorobenzene	91.1	39.1-146		%Rec	1	1/26/2024 3:12:10 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 1:01:46 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-29 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 10:40:00 AM
Lab ID: 2401883-034 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/26/2024 12:11:05 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/26/2024 12:11:05 PM
Surr: DNOP	99.1	69-147		%Rec	1	1/26/2024 12:11:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/26/2024 4:23:47 PM
Surr: BFB	100	15-244		%Rec	1	1/26/2024 4:23:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 4:23:47 PM
Toluene	ND	0.050		mg/Kg	1	1/26/2024 4:23:47 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/26/2024 4:23:47 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/26/2024 4:23:47 PM
Surr: 4-Bromofluorobenzene	90.1	39.1-146		%Rec	1	1/26/2024 4:23:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 2:17:33 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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-30 0'
Project: Dickens 29 Federal 003H
Collection Date: 1/19/2024 10:50:00 AM
Lab ID: 2401883-035 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/29/2024 12:21:30 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/29/2024 12:21:30 PM
Surr: DNOP	83.3	69-147		%Rec	1	1/29/2024 12:21:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 4:47:36 PM
Surr: BFB	98.1	15-244		%Rec	1	1/26/2024 4:47:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/26/2024 4:47:36 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 4:47:36 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 4:47:36 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/26/2024 4:47:36 PM
Surr: 4-Bromofluorobenzene	89.8	39.1-146		%Rec	1	1/26/2024 4:47:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	120	60		mg/Kg	20	1/29/2024 2:32:44 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401883**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-30 2'
Project: Dickens 29 Federal 003H **Collection Date:** 1/19/2024 11:00:00 AM
Lab ID: 2401883-036 **Matrix:** SOIL **Received Date:** 1/23/2024 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/26/2024 12:35:06 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/26/2024 12:35:06 PM
Surr: DNOP	89.2	69-147		%Rec	1	1/26/2024 12:35:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/26/2024 5:11:21 PM
Surr: BFB	100	15-244		%Rec	1	1/26/2024 5:11:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/26/2024 5:11:21 PM
Toluene	ND	0.049		mg/Kg	1	1/26/2024 5:11:21 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/26/2024 5:11:21 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/26/2024 5:11:21 PM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	1/26/2024 5:11:21 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	590	60		mg/Kg	20	1/29/2024 2:47:52 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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **MB-80079**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **80079**	RunNo: **102655**								
Prep Date: **1/24/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793216**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-80079**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **80079**	RunNo: **102655**								
Prep Date: **1/24/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793217**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.1	90	110			

Sample ID: **MB-80097**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **80097**	RunNo: **102684**								
Prep Date: **1/25/2024**	Analysis Date: **1/25/2024**	SeqNo: **3794754**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-80097**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **80097**	RunNo: **102684**								
Prep Date: **1/25/2024**	Analysis Date: **1/25/2024**	SeqNo: **3794755**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Sample ID: **MB-80129**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **80129**	RunNo: **102755**								
Prep Date: **1/29/2024**	Analysis Date: **1/29/2024**	SeqNo: **3796583**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-80129**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **80129**	RunNo: **102755**								
Prep Date: **1/29/2024**	Analysis Date: **1/29/2024**	SeqNo: **3796584**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **MB-80076**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80076**	RunNo: **102657**
Prep Date: **1/24/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793415** 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	8.5		10.00		84.6	69	147			

Sample ID: **LCS-80076**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80076**	RunNo: **102657**
Prep Date: **1/24/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793416** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.9	61.9	130			
Surr: DNOP	4.4		5.000		88.4	69	147			

Sample ID: **MB-80096**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80096**	RunNo: **102682**
Prep Date: **1/25/2024**	Analysis Date: **1/25/2024**	SeqNo: **3794232** 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	8.7		10.00		86.7	69	147			

Sample ID: **LCS-80096**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80096**	RunNo: **102682**
Prep Date: **1/25/2024**	Analysis Date: **1/25/2024**	SeqNo: **3794233** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.2	61.9	130			
Surr: DNOP	4.4		5.000		88.7	69	147			

Sample ID: **2401883-012AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH24-17 2'**	Batch ID: **80096**	RunNo: **102682**
Prep Date: **1/25/2024**	Analysis Date: **1/25/2024**	SeqNo: **3794236** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	37	8.9	44.33	0	83.7	54.2	135			
Surr: DNOP	4.2		4.433		94.1	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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **2401883-012AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH24-17 2'**	Batch ID: **80096**	RunNo: **102682**
Prep Date: **1/25/2024**	Analysis Date: **1/25/2024**	SeqNo: **3794238** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	9.2	46.21	0	82.3	54.2	135	2.52	29.2	
Surr: DNOP	4.3		4.621		92.4	69	147	0	0	

Sample ID: **MB-80100**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80100**	RunNo: **102721**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795517** 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	8.2		10.00		82.5	69	147			

Sample ID: **LCS-80100**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80100**	RunNo: **102721**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795518** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	83.8	61.9	130			
Surr: DNOP	4.4		5.000		88.7	69	147			

Sample ID: **2401883-032AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH24-28 2'**	Batch ID: **80100**	RunNo: **102721**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795520** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.05	0	83.0	54.2	135			
Surr: DNOP	4.4		5.005		88.9	69	147			

Sample ID: **2401883-032AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH24-28 2'**	Batch ID: **80100**	RunNo: **102721**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795521** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	34	9.2	46.04	0	74.6	54.2	135	19.0	29.2	
Surr: DNOP	3.7		4.604		80.3	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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **lcs-80058**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **80058**	RunNo: **102685**
Prep Date: **1/23/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793629** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	70	130			
Surr: BFB	2300		1000		233	15	244			

Sample ID: **mb-80058**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **80058**	RunNo: **102685**
Prep Date: **1/23/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793630** 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	1100		1000		107	15	244			

Sample ID: **lcs-80094**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795559** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.00	0	111	70	130			
Surr: BFB	2100		1000		214	15	244			

Sample ID: **mb-80094**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795561** 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		98.7	15	244			

Sample ID: **2401883-032ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-28 2'**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795564** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	24.75	0	117	70	130			
Surr: BFB	2200		990.1		226	15	244			

Sample ID: **2401883-032amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-28 2'**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795565** 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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **2401883-032amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-28 2'**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795565** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.9	24.61	0	117	70	130	0.797	20	
Surr: BFB	2200		984.3		221	15	244	0	0	

Sample ID: **lcs-80078**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795793** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	70	130			
Surr: BFB	2300		1000		226	15	244			

Sample ID: **mb-80078**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795794** 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	1100		1000		105	15	244			

Sample ID: **2401883-012ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-17 2'**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.92	0	102	70	130			
Surr: BFB	2200		956.9		230	15	244			

Sample ID: **2401883-012amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-17 2'**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795797** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	23.95	0	96.0	70	130	6.12	20	
Surr: BFB	2100		957.9		220	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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **lcs-80058**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80058**	RunNo: **102685**
Prep Date: **1/23/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793656** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	70	130			
Toluene	1.0	0.050	1.000	0	101	70	130			
Ethylbenzene	1.0	0.050	1.000	0	103	70	130			
Xylenes, Total	3.1	0.10	3.000	0	104	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	39.1	146			

Sample ID: **mb-80058**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80058**	RunNo: **102685**
Prep Date: **1/23/2024**	Analysis Date: **1/24/2024**	SeqNo: **3793657** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	39.1	146			

Sample ID: **LCS-80094**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795615** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.1	70	130			
Toluene	0.93	0.050	1.000	0	92.8	70	130			
Ethylbenzene	0.95	0.050	1.000	0	94.5	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.3	70	130			
Surr: 4-Bromofluorobenzene	0.93		1.000		92.8	39.1	146			

Sample ID: **mb-80094**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795617** 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	0.90		1.000		89.9	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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **2401883-033ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH24-29 0'**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795621** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	0.9843	0	91.8	70	130			
Toluene	0.91	0.049	0.9843	0	92.1	70	130			
Ethylbenzene	0.93	0.049	0.9843	0	94.5	70	130			
Xylenes, Total	2.8	0.098	2.953	0	94.4	70	130			
Surr: 4-Bromofluorobenzene	0.92		0.9843		93.5	39.1	146			

Sample ID: **2401883-033amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH24-29 0'**	Batch ID: **80094**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795622** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	0.9833	0	96.6	70	130	5.02	20	
Toluene	0.96	0.049	0.9833	0	97.4	70	130	5.52	20	
Ethylbenzene	0.98	0.049	0.9833	0	100	70	130	5.65	20	
Xylenes, Total	3.0	0.098	2.950	0	101	70	130	6.79	20	
Surr: 4-Bromofluorobenzene	0.93		0.9833		94.2	39.1	146	0	0	

Sample ID: **lcs-80078**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795820** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.3	70	130			
Toluene	0.94	0.050	1.000	0	93.6	70	130			
Ethylbenzene	0.95	0.050	1.000	0	94.8	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.5	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.7	39.1	146			

Sample ID: **2401883-013ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH24-18 0'**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.024	0.9488	0	94.5	70	130			
Toluene	0.90	0.047	0.9488	0	94.5	70	130			
Ethylbenzene	0.91	0.047	0.9488	0	96.3	70	130			
Xylenes, Total	2.8	0.095	2.846	0	96.6	70	130			
Surr: 4-Bromofluorobenzene	0.95		0.9488		100	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#: **2401883**

02-Feb-24

Client: Vertex Resources Services, Inc.

Project: Dickens 29 Federal 003H

Sample ID: **2401883-013amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH24-18 0'**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9470	0	92.8	70	130	2.02	20	
Toluene	0.88	0.047	0.9470	0	93.4	70	130	1.46	20	
Ethylbenzene	0.91	0.047	0.9470	0	95.6	70	130	0.878	20	
Xylenes, Total	2.7	0.095	2.841	0	95.9	70	130	0.941	20	
Surr: 4-Bromofluorobenzene	0.94		0.9470		99.5	39.1	146	0	0	

Sample ID: **mb-80078**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80078**	RunNo: **102705**
Prep Date: **1/24/2024**	Analysis Date: **1/26/2024**	SeqNo: **3795833** 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	0.98		1.000		98.0	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.		

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
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** Work Order Number: **2401883** RcptNo: **1**

Received By: **Joseph Alderette** **1/23/2024 8:15:00 AM**

Completed By: **Cheyenne Cason** **1/23/2024 8:48:47 AM**

Reviewed By: SCM 1/23/24

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: JH 1-23-24

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: Client did not relinquish coc/samples on coc. JH 1/23/24

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.0	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: Mack Energy / 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: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carttar

Sampler: John Rewis

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 3.8 + 0.2 = 4.0 (°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. 2401883	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)
1-17-24	11:00	Soil	BH24-12' 0'	4 oz	ICE	001										
	11:10		BH24-12 2'			002										
	11:20		BH24-13 0'			003										
	11:30		BH24-13 2'			004										
	11:40		BH24-14 0'			005										
	11:50		BH24-14 2'			006										
	12:00		BH24-15 0'			007										
	12:10		BH24-15 2'			008										
			~~BH24-22 0'~~													
			~~BH24-22 2'~~													
			~~BH24-23 0'~~													
			~~BH24-23 2'~~													

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					1/22/24	1015
1/22/24	1900			courier	1-23-24	8:15

Remarks: cc: scarttar@vertex.ca
jrewis@vertex.ca

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

Chain-of-Custody Record

Client: Mack Energy / Vertex

Mailing Address: on file

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: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carthar

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 3.8 + 0.2 = 4.0 (°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. 2401883	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)
1-18-24	0900	soil	BH24-16 0'	4 oz	ICE	009										
	0930		BH24-16 2'			010										
	0940		BH24-17 0'			011										
	1000		BH24-17 2'			012										
	1010		BH24-18 0'			013										
	1020		BH24-18 2'			014										
	1030		BH24-19 0'			015										
	1040		BH24-19 2'			016										
	1100		BH24-20 0'			017										
	1120		BH24-20 2'			018										
	1130		BH24-21 0'			019										
	1140		BH24-21 2'			020										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			[signature]		1/22/24	1015
Date: 1/22/24	Time: 1900	Relinquished by: [signature]	Received by: [signature]	Via: Courier	Date: 1-23-24	Time: 8:15

Remarks:
cc: SCarthar@vertex.ca
Jrewis@vertex.ca

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

Chain-of-Custody Record

Client: Mack Energy / 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: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carthar

Sampler: JR

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 3.8 + 0.2 = 4.0 (°C) -0.4

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. 2401883
1-18-24	1200	Soil	BH24-22 0'	4 oz	ICE	021
	1220		BH24-22 2'			022
	1300		BH24-23 0'			023
	1330		BH24-23 2'			024
1-19-24	0900		BH24-24 0'			~~024~~ 025
	0910		BH24-24 2'			026
	0920		BH24-25 0'			027
	0930		BH24-25 2'			028
	0940		BH24-[redacted]27 0'			029
	1000		BH24-[redacted]27 2'			030
	1010		BH24-28 0'			031
	1020		BH24-28 2'			~~02~~ 032

Analysis Request columns: 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
			[signature]		1/22/24	1015
1/22/24	1900	[signature]	[signature]	courier	1-23-24	8:15

Remarks:
cc: Scarthar@vertex.ca
Jrewis@vertex.ca

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

Chain-of-Custody Record

Client: Mack Energy / 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 Days

Project Name: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carthar

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.8 + 0.2 = 4.0 (°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. 2401883
1-19-24	1030		BH24-29 0'	4 oz	Ice	033
	1040		BH24-29 2'			034
	1050		BH24-30 0'			035
	1100		BH24-30 2'			036
			BH24			
			BH24			
			BH24			

Analysis Request

BTEX / MTBE / TMB's (8021)	(PH: 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
					1/22/24	1015
1/22/24	1900			Courier	1-23-24	8:15

Remarks:
CC: Sally - scarthar@vertex.ca
Jrew:s@vertex.ca

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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 02, 2024

Sally Carttar

Mack Energy
111 Farris #24
Carlsbad, NM 88220
TEL: (575) 200-9914
FAX:

RE: Dickens 29 Federal 003H OrderNo.: 2401926

Dear Sally Carttar:

Eurofins Environment Testing South Central, LLC received 10 sample(s) on 1/24/2024 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 do not hesitate to contact Eurofins Albuquerque 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-11 4'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 9:00:00 AM
Lab ID: 2401926-001 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/29/2024 2:12:53 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/29/2024 2:12:53 PM
Surr: DNOP	82.0	69-147		%Rec	1	1/29/2024 2:12:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/27/2024 4:38:42 AM
Surr: BFB	98.2	15-244		%Rec	1	1/27/2024 4:38:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/27/2024 4:38:42 AM
Toluene	ND	0.048		mg/Kg	1	1/27/2024 4:38:42 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/27/2024 4:38:42 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/27/2024 4:38:42 AM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	1/27/2024 4:38:42 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	210	60		mg/Kg	20	1/29/2024 3:03:01 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-19 4'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 9:10:00 AM
Lab ID: 2401926-002 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/29/2024 2:25:01 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/29/2024 2:25:01 PM
Surr: DNOP	90.6	69-147		%Rec	1	1/29/2024 2:25:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/27/2024 5:02:31 AM
Surr: BFB	95.1	15-244		%Rec	1	1/27/2024 5:02:31 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/27/2024 5:02:31 AM
Toluene	ND	0.048		mg/Kg	1	1/27/2024 5:02:31 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/27/2024 5:02:31 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/27/2024 5:02:31 AM
Surr: 4-Bromofluorobenzene	85.2	39.1-146		%Rec	1	1/27/2024 5:02:31 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 3:48:28 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-23 4'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 9:20:00 AM
Lab ID: 2401926-003 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	1/29/2024 2:37:14 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/29/2024 2:37:14 PM
Surr: DNOP	95.5	69-147		%Rec	1	1/29/2024 2:37:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/27/2024 5:26:22 AM
Surr: BFB	96.2	15-244		%Rec	1	1/27/2024 5:26:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/27/2024 5:26:22 AM
Toluene	ND	0.047		mg/Kg	1	1/27/2024 5:26:22 AM
Ethylbenzene	ND	0.047		mg/Kg	1	1/27/2024 5:26:22 AM
Xylenes, Total	ND	0.095		mg/Kg	1	1/27/2024 5:26:22 AM
Surr: 4-Bromofluorobenzene	86.1	39.1-146		%Rec	1	1/27/2024 5:26:22 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 4:03:36 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-24 4'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 9:30:00 AM
Lab ID: 2401926-004 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/29/2024 2:49:33 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/29/2024 2:49:33 PM
Surr: DNOP	82.1	69-147		%Rec	1	1/29/2024 2:49:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/27/2024 5:50:16 AM
Surr: BFB	95.5	15-244		%Rec	1	1/27/2024 5:50:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	1/27/2024 5:50:16 AM
Toluene	ND	0.046		mg/Kg	1	1/27/2024 5:50:16 AM
Ethylbenzene	ND	0.046		mg/Kg	1	1/27/2024 5:50:16 AM
Xylenes, Total	ND	0.092		mg/Kg	1	1/27/2024 5:50:16 AM
Surr: 4-Bromofluorobenzene	86.2	39.1-146		%Rec	1	1/27/2024 5:50:16 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	73	60		mg/Kg	20	1/29/2024 4:49:04 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-28 4'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 9:40:00 AM
Lab ID: 2401926-005 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/29/2024 3:01:47 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/29/2024 3:01:47 PM
Surr: DNOP	93.4	69-147		%Rec	1	1/29/2024 3:01:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/27/2024 6:14:07 AM
Surr: BFB	95.0	15-244		%Rec	1	1/27/2024 6:14:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/27/2024 6:14:07 AM
Toluene	ND	0.048		mg/Kg	1	1/27/2024 6:14:07 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/27/2024 6:14:07 AM
Xylenes, Total	ND	0.096		mg/Kg	1	1/27/2024 6:14:07 AM
Surr: 4-Bromofluorobenzene	86.6	39.1-146		%Rec	1	1/27/2024 6:14:07 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 5:04:14 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-30 4'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 9:50:00 AM
Lab ID: 2401926-006 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	1/29/2024 3:13:55 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/29/2024 3:13:55 PM
Surr: DNOP	79.6	69-147		%Rec	1	1/29/2024 3:13:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/27/2024 6:37:50 AM
Surr: BFB	94.7	15-244		%Rec	1	1/27/2024 6:37:50 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/27/2024 6:37:50 AM
Toluene	ND	0.049		mg/Kg	1	1/27/2024 6:37:50 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/27/2024 6:37:50 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/27/2024 6:37:50 AM
Surr: 4-Bromofluorobenzene	86.2	39.1-146		%Rec	1	1/27/2024 6:37:50 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	110	60		mg/Kg	20	1/29/2024 5:19:23 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-31 0'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 10:00:00 AM
Lab ID: 2401926-007 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/29/2024 3:26:07 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/29/2024 3:26:07 PM
Surr: DNOP	92.4	69-147		%Rec	1	1/29/2024 3:26:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/27/2024 7:01:28 AM
Surr: BFB	96.3	15-244		%Rec	1	1/27/2024 7:01:28 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/27/2024 7:01:28 AM
Toluene	ND	0.049		mg/Kg	1	1/27/2024 7:01:28 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/27/2024 7:01:28 AM
Xylenes, Total	ND	0.097		mg/Kg	1	1/27/2024 7:01:28 AM
Surr: 4-Bromofluorobenzene	87.4	39.1-146		%Rec	1	1/27/2024 7:01:28 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	110	60		mg/Kg	20	1/29/2024 5:34:32 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-31 2'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 10:10:00 AM
Lab ID: 2401926-008 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/29/2024 3:38:19 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/29/2024 3:38:19 PM
Surr: DNOP	88.2	69-147		%Rec	1	1/29/2024 3:38:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/27/2024 7:48:33 AM
Surr: BFB	98.8	15-244		%Rec	1	1/27/2024 7:48:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/27/2024 7:48:33 AM
Toluene	ND	0.050		mg/Kg	1	1/27/2024 7:48:33 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/27/2024 7:48:33 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/27/2024 7:48:33 AM
Surr: 4-Bromofluorobenzene	89.7	39.1-146		%Rec	1	1/27/2024 7:48:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	220	60		mg/Kg	20	1/29/2024 5:49:42 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-32 0'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 10:20:00 AM
Lab ID: 2401926-009 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/29/2024 3:50:30 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/29/2024 3:50:30 PM
Surr: DNOP	88.9	69-147		%Rec	1	1/29/2024 3:50:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/27/2024 8:12:00 AM
Surr: BFB	96.2	15-244		%Rec	1	1/27/2024 8:12:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	1/27/2024 8:12:00 AM
Toluene	ND	0.047		mg/Kg	1	1/27/2024 8:12:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	1/27/2024 8:12:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	1/27/2024 8:12:00 AM
Surr: 4-Bromofluorobenzene	88.3	39.1-146		%Rec	1	1/27/2024 8:12:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	1/29/2024 6:04:51 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 **2401926**
Date Reported: **2/2/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Mack Energy
Client Sample ID: BH24-32 2'
Project: Dickens 29 Federal 003H
Collection Date: 1/22/2024 10:30:00 AM
Lab ID: 2401926-010 **Matrix:** SOIL **Received Date:** 1/24/2024 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/29/2024 4:02:38 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/29/2024 4:02:38 PM
Surr: DNOP	80.2	69-147		%Rec	1	1/29/2024 4:02:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/27/2024 8:35:29 AM
Surr: BFB	97.1	15-244		%Rec	1	1/27/2024 8:35:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	1/27/2024 8:35:29 AM
Toluene	ND	0.049		mg/Kg	1	1/27/2024 8:35:29 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/27/2024 8:35:29 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/27/2024 8:35:29 AM
Surr: 4-Bromofluorobenzene	88.6	39.1-146		%Rec	1	1/27/2024 8:35:29 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	400	60		mg/Kg	20	1/29/2024 6:20:01 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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#: **2401926**

02-Feb-24

Client: Mack Energy

Project: Dickens 29 Federal 003H

Sample ID: **MB-80129**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **80129**	RunNo: **102755**
Prep Date: **1/29/2024**	Analysis Date: **1/29/2024**	SeqNo: **3796583** Units: **mg/Kg**

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

Sample ID: **LCS-80129**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **80129**	RunNo: **102755**
Prep Date: **1/29/2024**	Analysis Date: **1/29/2024**	SeqNo: **3796584** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401926**

02-Feb-24

Client: Mack Energy

Project: Dickens 29 Federal 003H

Sample ID: **LCS-80109**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80109**	RunNo: **102750**
Prep Date: **1/26/2024**	Analysis Date: **1/29/2024**	SeqNo: **3796506** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	105	61.9	130			
Surr: DNOP	4.6		5.000		91.8	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#: **2401926**

02-Feb-24

Client: Mack Energy

Project: Dickens 29 Federal 003H

Sample ID: **lcs-80099**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795560** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	2100		1000		210	15	244			

Sample ID: **mb-80099**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795562** 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		99.4	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#: **2401926**

02-Feb-24

Client: Mack Energy

Project: Dickens 29 Federal 003H

Sample ID: **LCS-80099**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795616** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.5	70	130			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Ethylbenzene	0.93	0.050	1.000	0	92.5	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.4	70	130			
Surr: 4-Bromofluorobenzene	0.89		1.000		89.0	39.1	146			

Sample ID: **mb-80099**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80099**	RunNo: **102722**
Prep Date: **1/25/2024**	Analysis Date: **1/27/2024**	SeqNo: **3795618** 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	0.89		1.000		88.9	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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
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: **Mack Energy** Work Order Number: **2401926** RcptNo: **1**

Received By: **Tracy Casarrubias** **1/24/2024 7:15:00 AM**

Completed By: **Tracy Casarrubias** **1/24/2024 8:09:03 AM**

Reviewed By: 1-24-24

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: TMC 1/24/24

Special Handling (if applicable)

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

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: Mailing address,phone number, and Email/Fax are missing on COC- TMC 1/24/24

16. Additional remarks:

Client did not relinquish chain of custody

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.8	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Mack Energy / Vertex

Mailing Address: on file

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: Dickens 29 Federal #003H

Project #: 23E-04710

Project Manager: Sally Carttar

Sampler: JR

On Ice: ☑ Yes ☐ No 4ogi

# of Coolers: 1

Cooler Temp(Including CF): 0.9 - 0.1 = 0.8 (°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. 2401926	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)
1-22-24	0900	Soil	BH24-11 4'	4 oz	Ice	001										
	0910		BH24-19 4'			002										
	0920		BH24-23 4'			003										
	0930		BH24-24 4'			004										
	0940		BH24-28 4'			005										
	0950		BH24-30 4'			006										
	1000		BH24-31 0'			007										
	1010		BH24-31 2'			008										
	1020		BH24-32 0'			009										
↓	1030	↓	BH24-32 2'	↓	↓	010	↓	↓					↓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					1/23/24	1020
Date: 1/23/24	Time: 1700	Relinquished by:	Received by:	Via: courier	Date 1/24/24	Time 7:15

Remarks:
cc: Scarttar@vertex.ca
Jtewis@vertex.ca

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

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

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

QUESTIONS

Action 362216

QUESTIONS

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAB1515240134**
Incident Name	**NAB1515240134 DICKENS 29 FEDERAL #003H @ 30-015-37220**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-015-37220] DICKENS 29 FEDERAL #003H**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	DICKENS 29 FEDERAL #003H
Date Release Discovered	02/18/2015
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Human Error | Tank (Any) | Produced Water | Released: 5 BBL | Recovered: 4 BBL | Lost: 1 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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

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

QUESTIONS (continued)

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**More info needed to determine if this will be treated as a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**No**
Reasons why this would be considered a submission for a notification of a major release	*Unavailable.*
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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

I hereby agree and sign off to the above statement	Name: Sally Carttar Title: Consultant Email: scarttar@vertex.ca Date: 07/10/2024

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

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

QUESTIONS (continued)

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 26 and 50 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between ½ and 1 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1000 (ft.) and ½ (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 500 and 1000 (ft.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	6500
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	4400
GRO+DRO (EPA SW-846 Method 8015M)	2200
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	04/02/2024
On what date will (or did) the final sampling or liner inspection occur	04/19/2024
On what date will (or was) the remediation complete(d)	04/19/2024
What is the estimated surface area (in square feet) that will be reclaimed	6455
What is the estimated volume (in cubic yards) that will be reclaimed	312
What is the estimated surface area (in square feet) that will be remediated	6455
What is the estimated volume (in cubic yards) that will be remediated	312
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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

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

QUESTIONS (continued)

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	No
(In Situ) Soil Vapor Extraction	No
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	No
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	No
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	No
Ground Water Abatement pursuant to 19.15.30 NMAC	No
OTHER (Non-listed remedial process)	No
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Sally Carttar Title: Consultant Email: scarttar@vertex.ca Date: 07/10/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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

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

QUESTIONS (continued)

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

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

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

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

QUESTIONS (continued)

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**333666**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**04/19/2024**
What was the (estimated) number of samples that were to be gathered	**15**
What was the sampling surface area in square feet	**3000**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	6455
What was the total volume (cubic yards) remediated	312
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	Only dig and haul

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

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

I hereby agree and sign off to the above statement	Name: Sally Carttar Title: Consultant Email: scarttar@vertex.ca Date: 07/10/2024

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

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

QUESTIONS (continued)

Operator: MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	OGRID: 13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

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

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 362216

CONDITIONS

Operator:	OGRID:
MACK ENERGY CORP P.O. Box 960 Artesia, NM 882110960	13837
	Action Number: 362216
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	8/21/2024