

Volume calculator

There was no volume calculator prepared when the spill occurred.



Incident Numbers:

nOY1805357830, nOY1809932713

## Remediation Closure

Ragin Cajun 12 Federal #002H

Unit M, Section 12, Township 26 South, Range 34 East

API: 30-025-42256

County: Lea

Vertex File Number: 23E-02965

**Prepared for:**

Devon Energy Production Company, LP

**Prepared by:**

Vertex Resource Services Inc.

**Date:**

August 2024

**Devon Energy Production Company, LP**  
Ragin Cajun 12 Federal #002H

**Remediation Closure**  
August 2024

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**Ragin Cajun 12 Federal #002H**  
**Unit M, Section 12, Township 26 South, Range 34 East**  
**API: 30-025-42256**  
**County: Lea**

Prepared for:  
**Devon Energy Production Company, LP**  
6488 Seven Rivers Highway  
Artesia, New Mexico 88210

**New Mexico Oil Conservation Division**  
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Riley Plogger  
ENVIRONMENTAL SPECIALIST, REPORTING

8/23/24

Date



Chad Hensley, B.Sc., GCNR  
SENIOR PROJECT MANAGER, REPORT REVIEW

8/23/24

Date

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## 1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Remediation Closure for produced water and crude oil releases that occurred on February 7 and March 24, 2018, at Ragin Cajun 12 Federal #002H API 30-025-42256 (hereafter referred to as the “site”). Devon submitted initial C-141 Release Notifications (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 1 on February 21 and April 6, 2018. Incident ID numbers nOY1805357830 (1RP-4976) and nOY1809932713 (1RP-5016) were 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 deferred until such time as all oil and gas activities are terminated and the site is reclaimed as per NMAC 19.15.29.13.

## 2.0 Incident Description

### 2.1 nOY1805357830, 1RP-4976

The first release occurred on February 7, 2018, due to a leak at the pumping tee. The incident was reported on February 21, 2018, and involved the release of approximately 5.4 barrels (bbl) of produced water and 1.1 bbl of produced oil 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 (Appendix A).

### 2.2 nOY1809932713, 1RP-5016

The second release was an illegal dumping incident discovered on March 24, 2018, at the north edge of the pad. The incident was reported on April 6, 2018, and the illegal dumping was estimated to be 30 bbl of produced water. No fluid was recovered during the initial clean-up. Additional details relevant to the release are presented in the C-141 Report (Appendix A).

## 3.0 Site Characteristics

The site is located approximately 12.5 miles west of Bennett, New Mexico. The legal location for the site is Unit M, Section 12, Township 26 South, Range 34 East in Lea County, New Mexico. The release area is located on Bureau of Land Management 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. The following sections specifically describe the release areas at the north edge of the pad and around the wellhead on 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 Qep - Eolian and piedmont deposits (New Mexico Bureau of Geology and Mineral Resources, 2024). The karst geology potential for the site is low (United States Department of the Interior, Bureau of

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Land Management, 2018). The surrounding landscape is associated with depressions and dunes with elevations ranging between 3,000 and 4,400 feet. The climate is semiarid with average annual precipitation ranging between 10 and 15 inches. Predominant soil textures around the site are well-drained fine sands and fine sandy loams with negligible runoff potential (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Using information from the United States Department of Agriculture, the dominant vegetation was determined to be grasses interspersed with shrubs (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Limited to no vegetation is allowed to grow on the compacted production pad.

#### 4.0 Closure Criteria Determination

The nearest active well to the site is a monitoring well 2.33 miles to the southwest. 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 an intermittent stream located approximately 8,424 feet southwest 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

The nearest depth to groundwater reference to the release is an exploratory borehole advanced 0.03 miles to the southeast on April 17, 2024. The borehole was terminated at 55 feet below ground surface (bgs) without encountering the water surface (New Mexico Office of the State Engineer, 2024). Information pertaining to the depth to ground water determination is included in Appendix B.

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Table 1. Closure Criteria Determination			
Site Name: Ragin Cajun 12 Federal #002H			
Spill Coordinates: 32.0506089261752,-103.428484659939		X: 648365	Y: 3547125
Site Specific Conditions		Value	Unit
1	Depth to Groundwater (nearest reference)	>55	feet
	Distance between release and nearest DTGW reference	144	feet
		0.03	miles
	Date of nearest DTGW reference measurement	April 17, 2024	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	8,424	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	17,711	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	10,745	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	-	feet
	ii) Within 1000 feet of any fresh water well or spring	12,304	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	8,991	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	178,068	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest High Karst	68,650	feet
10	Within a 100-year Floodplain	Undetermined	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	72,144	feet
11	Soil Type	Fine sand, fine sandy loam	
12	Ecological Classification	Loamy Sand	
13	Geology	Eolian and piedmont deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<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
51 feet - 100 feet	Chloride	10,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

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

5.0 Remedial Actions Taken

Inspection and site characterization of the releases was completed by Vertex between June 6, 2023, and February 13, 2024, including vertical and horizontal delineation. The release area around the well was determined to be 13,128 square feet, and the release area at the north edge of the pad was determined to be 243 square feet. The Daily Field Reports associated with the site visits are included in Appendix C. Characterization sample locations and approximate release areas are presented on Figure 1. Characterization field screening and laboratory results are summarized in Table 3.

Remediation efforts began on July 08, 2024, and were finalized on July 25, 2024. Vertex personnel supervised the excavation of impacted soils. Field screening was completed on a total of 14 sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dextsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and titration with silver nitrate (chloride). Field screening results were used to identify areas requiring further remediation. Soils were removed to depths of 2 and 3 feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility. Daily Field Reports documenting various phases of the remediation are presented in Appendix C.

Notifications that confirmation samples were being collected was provided to the NMOCD 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 10 base and 4 wall samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to the Eurofins 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). 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.

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## 6.0 Closure Request

Vertex recommends no additional reclamation or remediation actions to address the release at Ragin Cajun 12 Federal #002H. Laboratory analyses of the confirmation samples showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is “between 51 and 100 feet to groundwater” as shown in Table 2. There are no anticipated or imminent risks to human, ecological, or hydrological receptors associated with the release site.

On behalf of Devon Energy Production Company, LP, Vertex requests that the incidents (nOY1805357830 and nOY1809932713) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Devon certifies that all information in this report and the attachments is correct and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the historical releases at the site.

Should you have any questions or concerns, please do not hesitate to contact Chad Hensley at 575.200.6167 or CHensley@vertexresource.com.

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Ragin Cajun 12 Federal #002H

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## 7.0 References

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- 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/>

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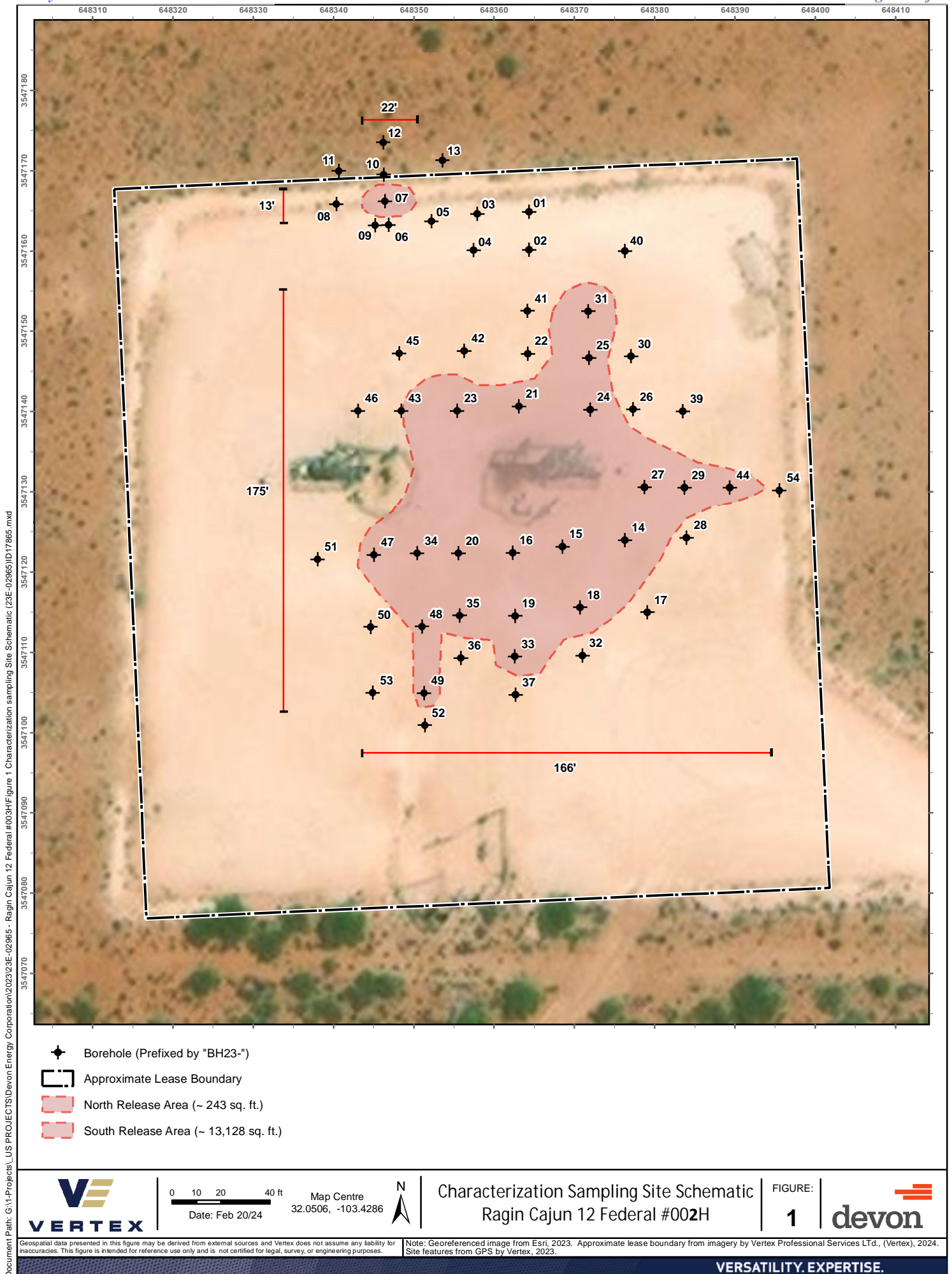
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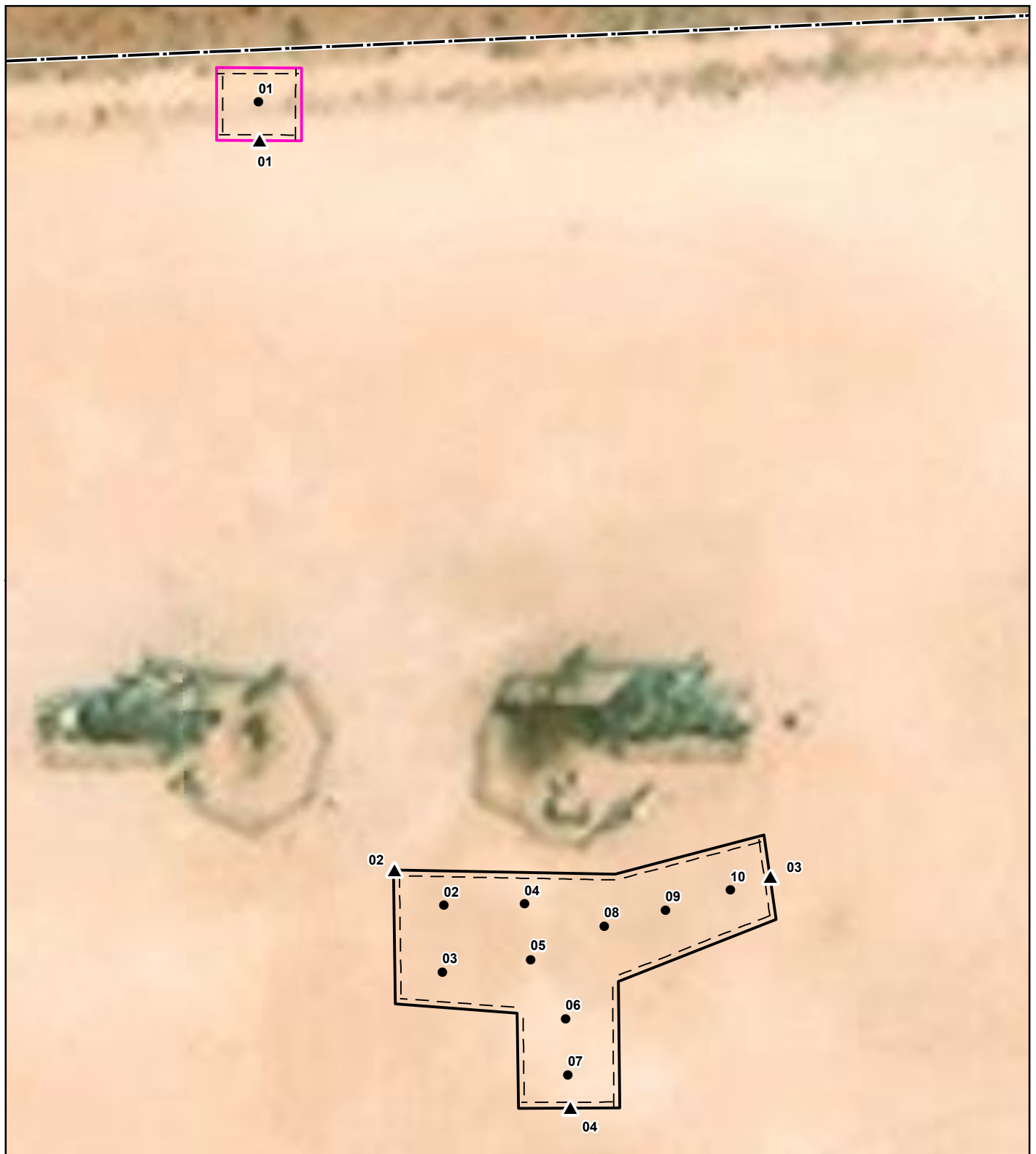
## 8.0 Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company, LP. 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 Devon Energy Production Company, LP. 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**





- Base Sample (Prefixed by "BS24-")
- ▲ Wall Sample (Prefixed by "WS24-")
- Approximate Lease Boundary
- Excavation to 2' bgs (~1,774 sq. ft. | 217 ft.)
- Excavation to 3' bgs (~197 sq.ft. | 57 ft.)



0 5 10 20 ft  
Date: Aug 08/24

Map Centre  
32.0507, -103.4285



### Confirmation Sampling Site Schematic Ragin Cajun 12 Federal #002H

FIGURE:

2

**devon**

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

Note: Georeferenced image from Esri, 2023. Approximate lease boundary from imagery by Vertex Professional Services Ltd., (Vertex), 2024. Site features from GPS by Vertex, 2024.

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## **TABLES**

Client Name: Devon Energy Production Company, LP

Site Name: Ragin Cajun 12 Federal #002H

NMOCD Tracking #: nOY1809932713 and nOY1805357830

Project #: 23E-02965

Lab Reports: 2306397,2312564, 2312529, 2312632, 2312629, 2312751, 2401258, 2402410 and 2402732

Table 1. Initial Characterization Sample Field Screen and Laboratory Results													
Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (petroFlag)	Chloride Concentration	Volatile		Extractable					
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Depth to Groundwater 51 feet to 100 feet bgs													
BH23-01	0	June 6, 2023	1	29	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	0	71	ND	ND	ND	ND	10	ND	ND	ND	ND
BH23-02	0	June 6, 2023	1	80	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	0	42	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-03	0	June 6, 2023	1	70	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	1	18	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-04	0	June 6, 2023	1	57	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	1	57	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-05	0	June 6, 2023	1	57	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-06	0	June 6, 2023	1	33	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-07	0	June 6, 2023	4	1,500	347	ND	ND	ND	2700	ND	2700	2700	290
	2	June 6, 2023	227	-	ND	ND	ND	ND	1900	ND	1900	1900	76
	4	December 7, 2023	0	22	174	ND	ND	ND	ND	ND	ND	ND	ND
BH23-08	0	June 6, 2023	1	42	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 6, 2023	0	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-09	0	December 6, 2023	-	26	ND	-	-	-	-	-	-	-	-
	2	December 6, 2023	-	30	ND	-	-	-	-	-	-	-	-
BH23-10	0	December 6, 2023	-	25	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 6, 2023	-	27	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-11	0	December 7, 2023	0	19	79	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 7, 2023	0	6	46	ND	ND	ND	ND	ND	ND	ND	ND
BH23-12	0	December 7, 2023	0	18	41	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 7, 2023	0	2	56	ND	ND	ND	ND	ND	ND	ND	ND
BH23-13	0	December 7, 2023	0	17	56	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 7, 2023	0	23	70	ND	ND	ND	ND	ND	ND	ND	ND
BH23-14	0	December 7, 2023	-	611	391	ND	ND	ND	790	630	790	1420	210
	2	December 7, 2023	0	31	148	ND	ND	ND	ND	ND	ND	ND	150
BH23-15	0	December 7, 2023	-	12,350	385	ND	ND	ND	7100	4900	7100	12000	410
	2	December 7, 2023	0	15	92	ND	ND	ND	ND	ND	ND	ND	150
BH23-16	0	December 7, 2023	-	-	4,869	ND	ND	ND	3100	1900	3100	5000	6500
	2	December 7, 2023	-	-	1,892	ND	ND	ND	ND	ND	ND	ND	1600
	4	January 3, 2024	-	-	3,283	-	-	-	-	-	-	-	-
	5	February 6, 2024	-	-	2,410	-	-	-	-	-	-	-	-
	6	February 6, 2024	-	-	960	ND	ND	ND	ND	ND	ND	ND	720
BH23-17	7	February 6, 2024	-	21	423	ND	ND	ND	ND	ND	ND	ND	100
	0	December 7, 2023	0	17	495	ND	ND	ND	ND	ND	ND	ND	360
	2	December 7, 2023	-	24	259	ND	ND	ND	ND	ND	ND	ND	240
BH23-18	0	December 7, 2023	-	-	1,187	ND	ND	ND	ND	ND	ND	ND	1100
	2	December 7, 2023	-	-	183	ND	ND	ND	ND	ND	ND	ND	190
BH23-19	0	December 7, 2023	-	-	1,016	ND	ND	ND	3100	5200	3100	8300	6500
	2	December 7, 2023	-	-	207	ND	ND	ND	ND	ND	ND	ND	1600
	4	January 3, 2024	-	429	503	ND	ND	ND	290	180	290	470	160
BH23-20	0	December 7, 2023	-	-	5,894	ND	ND	ND	3500	1700	3500	5200	7000
	2	December 7, 2023	-	-	2,433	ND	ND	ND	370	200	370	570	2600
	4	January 3, 2024	-	-	2,300	-	-	-	-	-	-	-	-

Client Name: Devon Energy Production Company, LP

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			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Depth to Groundwater 51 feet to 100 feet bgs													
BH23-21	0	December 7, 2023	-	-	2,130	ND	ND	ND	290	290	290	580	2300
	2	December 7, 2023	-	-	678	ND	ND	ND	ND	ND	ND	ND	710
	3.5	December 7, 2023	-	-	1,593	ND	ND	ND	ND	ND	ND	ND	1600
	5	January 3, 2024	-	-	1,690	-	-	-	-	-	-	-	-
	6	February 6, 2024	-	-	7,020	ND	ND	ND	ND	ND	ND	ND	6700
	7	February 6, 2024	-	-	6,188	-	-	-	-	-	-	-	-
	8	February 6, 2024	-	-	3,425	ND	ND	ND	ND	ND	ND	ND	3300
	9	February 6, 2024	-	-	930	-	-	-	-	-	-	-	-
BH23-22	0	December 8, 2023	0	17	238	ND	ND	ND	ND	ND	ND	ND	83
	2	December 8, 2023	0	8	434	ND	ND	ND	ND	ND	ND	ND	340
BH23-23	0	December 8, 2023	-	-	1,376	ND	ND	ND	75	120	75	195	1800
	2	December 8, 2023	-	-	284	ND	ND	ND	ND	ND	ND	ND	290
BH23-24	0	December 8, 2023	0	1,224	346	ND	ND	ND	190	330	190	520	370
	2	December 8, 2023	0	46	115	ND	ND	ND	ND	ND	ND	ND	76
BH23-25	0	December 8, 2023	-	-	1,245	ND	ND	ND	ND	ND	ND	ND	1300
	2	December 8, 2023	-	-	69	ND	ND	ND	ND	ND	ND	ND	100
BH23-26	0	December 8, 2023	-	20	279	ND	ND	ND	ND	ND	ND	ND	250
	2	December 8, 2023	0	29	82	ND	ND	ND	ND	ND	ND	ND	100
BH23-27	0	December 8, 2023	-	-	2,313	ND	ND	ND	ND	ND	ND	ND	2500
	2	December 8, 2023	-	-	255	ND	ND	ND	ND	ND	ND	ND	210
BH23-28	0	December 8, 2023	0	8	587	ND	ND	ND	ND	ND	ND	ND	530
	2	December 8, 2023	0	37	178	ND	ND	ND	ND	ND	ND	ND	80
BH23-29	0	December 8, 2023	-	-	955	ND	ND	ND	ND	ND	ND	ND	1200
	2	December 8, 2023	-	-	213	ND	ND	ND	ND	ND	ND	ND	240
BH23-30	0	December 8, 2023	0	14	ND	ND	ND	ND	ND	ND	ND	ND	96
	2	December 8, 2023	0	18	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-31	0	December 8, 2023	-	-	948	ND	ND	ND	ND	ND	ND	ND	1000
	2	December 8, 2023	-	-	284	ND	ND	ND	ND	ND	ND	ND	280
BH23-32	0	December 8, 2023	0	9	41	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 8, 2023	0	19	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-33	0	December 8, 2023	-	-	880	ND	ND	ND	ND	ND	ND	ND	1500
	2	December 8, 2023	-	-	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-34	0	December 10, 2023	-	-	1,866	-	-	-	-	-	-	-	-
	2	December 10, 2023	-	-	249	ND	ND	ND	ND	ND	ND	ND	64
BH23-35	0	December 10, 2023	-	-	4,500	-	-	-	-	-	-	-	-
	2	December 10, 2023	-	-	686	-	-	-	-	-	-	-	-
BH23-36	0	December 10, 2023	-	7	285	ND	ND	ND	ND	ND	ND	ND	94
	2	December 10, 2023	-	16	141	ND	ND	ND	ND	ND	ND	ND	ND
BH23-37	0	December 10, 2023	-	10	209	ND	ND	ND	ND	ND	ND	ND	67
	2	December 10, 2023	-	9	190	ND	ND	ND	ND	ND	ND	ND	ND
BH23-39	0	December 10, 2023	-	0	137	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 10, 2023	-	0	288	ND	ND	ND	ND	ND	ND	ND	88
BH23-40	0	December 10, 2023	-	11	103	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 10, 2023	-	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-41	0	December 10, 2023	-	0	406	ND	ND	ND	ND	ND	ND	ND	310
	2	December 10, 2023	-	0	261	ND	ND	ND	ND	ND	ND	ND	140
BH23-42	0	December 10, 2023	-	7	388	ND	ND	ND	ND	ND	ND	ND	250
	2	December 10, 2023	-	1	307	ND	ND	ND	ND	ND	ND	ND	220

Client Name: Devon Energy Production Company, LP

Site Name: Ragin Cajun 12 Federal #002H

NMOCD Tracking #: nOY1809932713 and nOY1805357830

Project #: 23E-02965

Lab Reports: 2306397,2312564, 2312529, 2312632, 2312629, 2312751, 2401258, 2402410 and 2402732

Table 1. Initial Characterization Sample Field Screen and Laboratory Results													
Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
Depth to Groundwater 51 feet to 100 feet bgs													
BH23-43	0	December 10, 2023	-	0	653	ND	ND	ND	ND	ND	ND	ND	580
	2	December 10, 2023	-	0	290	ND	ND	ND	ND	ND	ND	ND	170
BH23-44	0	December 10, 2023	-	-	1,739	-	-	-	-	-	-	-	-
	2	December 10, 2023	-	-	691	ND	ND	ND	ND	ND	ND	ND	390
BH23-45	0	December 11, 2023	-	52	1,119	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 11, 2023	-	35	194	ND	ND	ND	ND	ND	ND	ND	ND
BH23-46	0	December 11, 2023	-	40	731	ND	ND	ND	ND	ND	ND	ND	74
	2	December 11, 2023	-	51	86	ND	ND	ND	ND	ND	ND	ND	230
BH23-47	0	December 11, 2023	-	-	25	ND	ND	ND	ND	ND	ND	ND	920
	2	December 11, 2023	-	-	24	ND	ND	ND	ND	ND	ND	ND	110
BH23-48	0	December 11, 2023	-	-	217	ND	ND	ND	ND	ND	ND	ND	700
	2	December 11, 2023	-	-	398	ND	ND	ND	ND	ND	ND	ND	110
BH23-49	0	December 11, 2023	-	-	1,190	ND	ND	ND	ND	ND	ND	ND	840
	2	December 11, 2023	-	-	57	ND	ND	ND	ND	ND	ND	ND	ND
BH23-50	0	December 11, 2023	-	85	508	ND	ND	ND	ND	ND	ND	ND	270
	2	December 11, 2023	-	23	189	ND	ND	ND	ND	ND	ND	ND	79
BH23-51	0	December 11, 2023	-	20	139	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 11, 2023	-	11	121	ND	ND	ND	ND	ND	ND	ND	ND
BH23-52	0	December 11, 2023	-	42	72	ND	ND	ND	ND	ND	ND	ND	ND
	2	December 11, 2023	-	21	23	ND	ND	ND	ND	ND	ND	ND	ND
BH23-53	0	December 11, 2023	-	12	305	ND	ND	ND	ND	ND	ND	ND	92
	2	December 11, 2023	-	11	176	ND	ND	ND	ND	ND	ND	ND	ND
BH23-54	0	February 13, 2024	-	19	550	ND	ND	ND	ND	ND	ND	ND	170
	2	February 13, 2024	-	8	96	ND	ND	ND	ND	ND	ND	ND	ND

"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: Devon Energy Production Company, LP  
 Site Name: Rajin Cajun 12 Federal #002H  
 NMOCD Tracking #: nOY1805357830, nOY1809932713  
 Project #: 23E-02965  
 Lab Report: 88595731

Table 2. Confirmation Sample Field Screen and Laboratory Results										
Sample Description			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable					
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
Depth to Groundwater 51 feet to 100 feet										
BS24-01	3	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BS24-02	2	August 6, 2024	ND	ND	ND	52	ND	ND	52	710
BS24-03	2	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	1,100
BS24-04	2	August 6, 2024	ND	ND	ND	70	ND	ND	70	330
BS24-05	2	August 6, 2024	ND	ND	ND	270	170	ND	440	590
BS24-06	2	August 6, 2024	ND	ND	ND	180	140	ND	320	430
BS24-07	2	August 6, 2024	ND	ND	ND	62	64	ND	126	780
BS24-08	2	August 6, 2024	ND	ND	ND	420	250	ND	670	430
BS24-09	2	August 6, 2024	ND	ND	ND	13	ND	ND	13	210
BS24-10	2	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	200
WS24-01	0-3	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-02	0-2	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	ND
WS24-03	0-2	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	210
WS24-04	0-2	August 6, 2024	ND	ND	ND	ND	ND	ND	ND	200

"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 Reports**

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

Form C-141  
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company	Contact Rebecca Jamison-Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-513-5538
Facility Name Ragin Cajun 12 Federal 2H	Facility Type Oil
Surface Owner Federal	Mineral Owner Federal
API No. 30-025-42256	

### LOCATION OF RELEASE

Unit Letter M	Section 12	Township 26S	Range 34E	Feet from the	North/South Line	Feet from the	East/West Line	County Lea
------------------	---------------	-----------------	--------------	---------------	------------------	---------------	----------------	---------------

Latitude 32.05060 Longitude 103.42851 NAD83

### NATURE OF RELEASE

Type of Release Produced Water & Oil	Volume of Release 5.4 bbls Produced Water & 1.1bbls Oil	Volume Recovered 3.32bbls Produced Water & .68bbls Oil
Source of Release Connection Leak	Date and Hour of Occurrence 2/7/2018 @ 11:26 AM MST	Date and Hour of Discovery 2/7/2018 @ 11:26 AM MST
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? OCD- Olivia Yu BLM-Shelly Tucker	
By Whom? Mike Shoemaker	Date and Hour OCD and BLM-2/8/2018 @ 11:26AM MST via e-mail	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	
If a Watercourse was Impacted, Describe Fully.* N/A		


**RECEIVED**

By Olivia Yu at 4:01 pm, Feb 22, 2018

Describe Cause of Problem and Remedial Action Taken.\*  
The connection at the pumping "T" developed a leak resulting in the release. Power was shut off to the pumping unit to prevent any further release.

Describe Area Affected and Cleanup Action Taken.\*  
Approximately 6.6BBLS of mixed fluids (oil and produced water) was released to the pad surface and traveled across the pad surface and into the adjacent pasture (approximately 6-8 ft off the pad). Approximately 4BBLS of fluids was recovered via the dispatched vacuum truck. An environmental contractor will be contacted to assist with delineation and remediation efforts.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: <b>Dana DeLaRosa</b>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Dana DeLaRosa		Approved by Environmental Specialist: 	
Title: Field Admin Support	Approval Date: 2/22/2018	Expiration Date:	
E-mail Address: dana.delarosa@dv.com	Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>	
Date: 2/21/2018	Phone: 575.746.5594		

\* Attach Additional Sheets If Necessary

1RP-4976

nOY1805357830

pOY1805358070

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/21/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP-4976 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 3/22/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

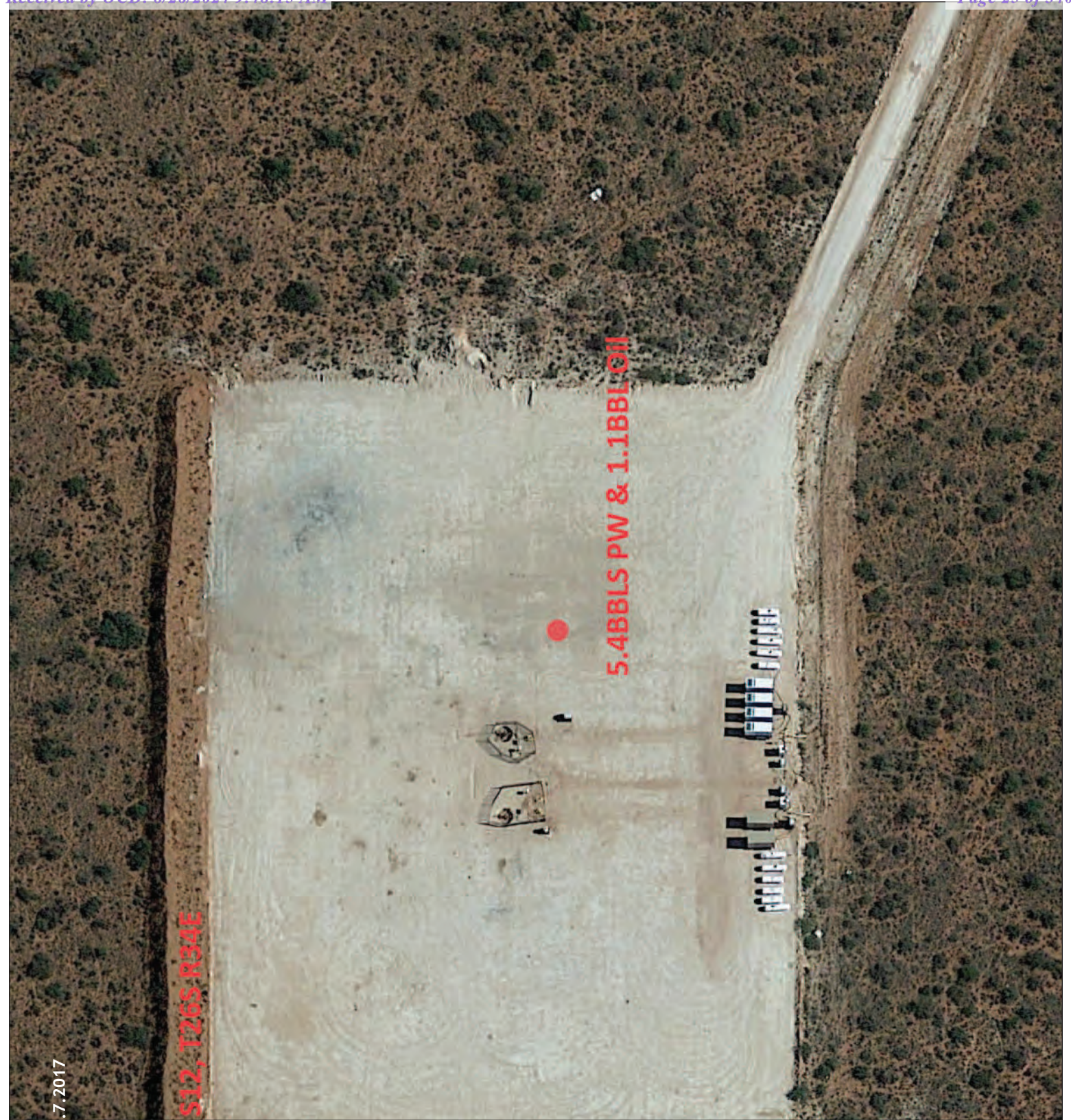
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505  
505-476-3465  
jim.griswold@state.nm.us



Ragin Cajun 12 Federal 2H  
5.4BBLS PW & 1.1BBLS Oil\_2.7.2017

This map is for illustrative purposes only and is  
neither a legally recorded map nor survey and is  
not intended to be used as one. The user makes no  
warranty, representation or guarantee of any  
kind regarding this map.



WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
Prepared by: Dana DeLaRosa  
Map is current as of: 08-Feb-2018



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

Form C-141  
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company	Contact Rebecca Jamison
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-748-3371
Facility Name Ragin Cajun 12 Federal 2H	Facility Type Oil
Surface Owner Federal	Mineral Owner Federal
API No. 30-025-42256	

### LOCATION OF RELEASE

Unit Letter M	Section 12	Township 26S	Range 34E	Feet from the	North/South Line	Feet from the	East/West Line	County LEA
------------------	---------------	-----------------	--------------	---------------	------------------	---------------	----------------	---------------

Latitude\_32.05111\_\_\_\_\_ Longitude\_103.42846\_\_\_\_\_ NAD83

### NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 30 bbls	Volume Recovered None
Source of Release Illegal Dumping	Date and Hour of Occurrence March 24, 2018 3:40 PM MST	Date and Hour of Discovery March 24, 2018 3:40 PM MST
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? BLM- Shelly Tucker OCD- Olivia Yu	
By Whom? Brett Fuls-EHS Representative	Date and Hour (via email) BLM- March 25, 2018 @ 11:57 AM MST OCD- March 25, 2018 @ 11:57AM MST	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.\*  
N/A

**RECEIVED**

By Olivia Yu at 9:08 am, Apr 09, 2018

Describe Cause of Problem and Remedial Action Taken.\*

A lease operator arrived to location and observed discoloration and fluid off the edge of the pad. This is believed to be an illegal dumping by an unknown party and the volume could not be determined as most of the fluid had soaked into the soil, but with the measurements taken it is believed that the fluid released was a minimum of 30BBLS and is believed to be produced water due to some salting being observed.

Describe Area Affected and Cleanup Action Taken.\*

Approximately 30 BBLS of Produced Water was illegally dumped on location. An environmental contractor will be contacted to assist with delineation and remediation efforts.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

### OIL CONSERVATION DIVISION

Signature: *Michael Shoemaker*

Printed Name: Michael Shoemaker

Title: Environmental Professional

E-mail Address: mike.shoemaker@dvn.com

Date: 04/06/18

Phone: 575.746.5594

Approved by Environmental Specialist:

Approval Date:

4/9/2018

Expiration Date:

Conditions of Approval:

see attached directive

Attached ☒

\* Attach Additional Sheets If Necessary

1RP-5016

nOY1809932713

pOY1809932972

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 4/6/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP-5016 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 5/9/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

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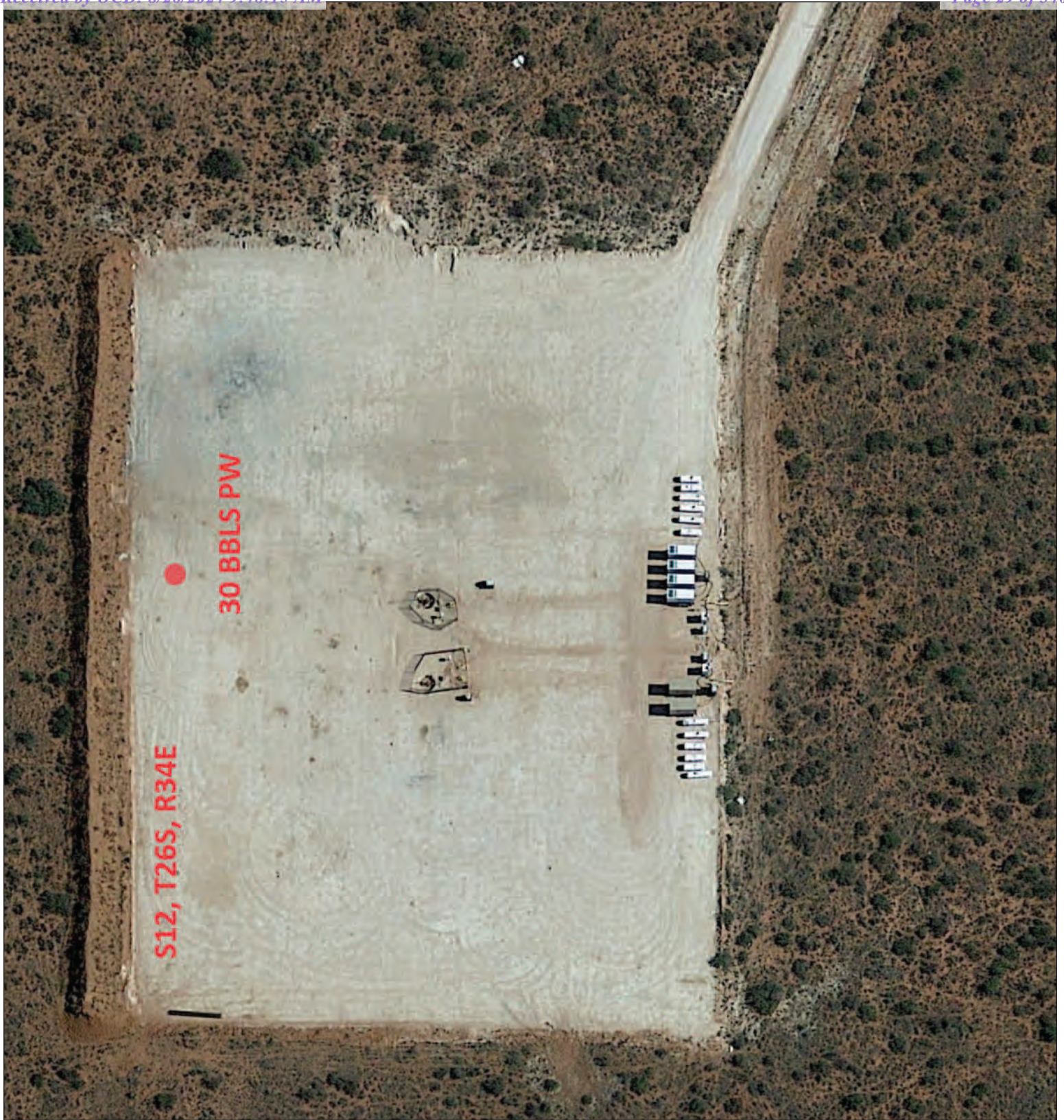
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**Jim Griswold**

OCD Environmental Bureau Chief  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505  
505-476-3465  
jim.griswold@state.nm.us

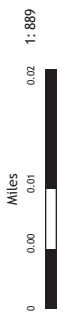


Ragin Cajun 12 Federal 2H  
30BBLS PW\_3.24.2018

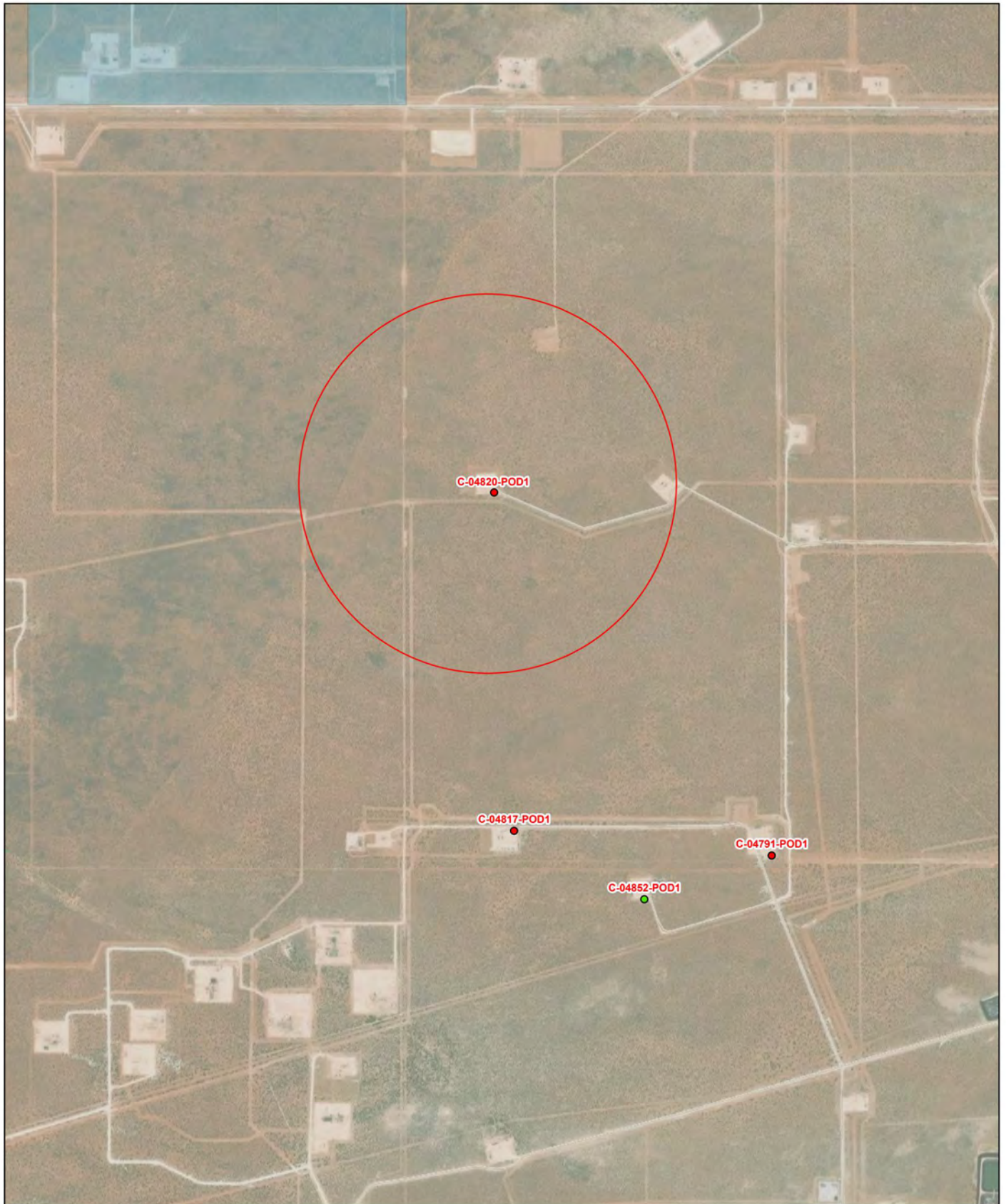
This map is for illustrative purposes only and is  
neither a legally recorded map nor survey and is  
not intended to be used as one. The person makes no  
warranty, representation or guarantee of any  
kind regarding this map.



WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
Prepared by: Dana DeLaRosa  
Map is current as of: 26-Mar-2018



## **APPENDIX B – Closure Criteria Research Documentation**



8/1/2024, 7:21:19 PM

GIS WATERS PODs

New Mexico State Trust Lands

● Pending

Both Estates

● Plugged

NHD Flowlines

OSE District Boundary

Stream River

Water Right Regulations








Closure Area

1:18,056

0 0.17 0.35 0.7 mi  
0 0.28 0.55 1.1 km

Esri, HERE, IPC, Esri, HERE, Garmin, IPC, Maxar

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 smallest to largest)				(NAD83 UTM in meters)				(In feet)	(In feet)	(In feet)								
POD Number	Code	Sub basin	County	Q64	Q16	Q4	Sec	Tws	Range	X	Y	Map	Distance	Well Depth	Depth Water	Water Column			
<a href="#">C 04820 POD1</a>		CUB	LE	NE	NW	NW	13	26S	34E	648389.9	3547088.9		43	55					
<a href="#">C 04817 POD1</a>		CUB	LE	SW	SE	SW	13	26S	34E	648499.2	3545657.3		1473	105					
<a href="#">C 04791 POD1</a>		CUB	LE	SE	SE	SE	13	26S	34E	649598.8	3545568.0		1986	60					
<a href="#">C 04710 POD1</a>		CUB	LE	SE	SE	SE	22	26S	34E	646399.7	3543956.9		3728						
<a href="#">C 04583 POD1</a>		CUB	LE	SW	SW	SW	15	26S	34E	644919.7	3545643.4		3750	55					
<a href="#">C 04601 POD1</a>		CUB	LE	SW	SE	SW	05	26S	35E	651709.8	3548919.7		3795						
<a href="#">C 04836 POD1</a>		CUB	LE	SE	SE	SE	21	26S	34E	644618.7	3543853.3		4973	105					
														Average Depth to Water: <b>0 feet</b>					
														Minimum Depth: <b>0 feet</b>					
														Maximum Depth: <b>0 feet</b>					
<b>Record Count:</b> 7																			
<b>UTM Filters (in meters):</b>																			
<b>Easting:</b> 648365																			
<b>Northing:</b> 3547125																			
<b>Radius:</b> 005000																			
* UTM location was derived from PLSS - see Help																			

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

# 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 Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
NA	C 04820 POD1	NE	NW	NW	13	26S	34E	648389.9	3547088.9	

\* UTM location was derived from PLSS - see Help

Driller License:	1833	Driller Company:	VISION RESOURCES, INC		
Driller Name:	JASON MALEY				
Drill Start Date:	2024-04-17	Drill Finish Date:	2024-04-17	Plug Date:	2024-04-22
Log File Date:	2024-04-25	PCW Rcv Date:		Source:	
Pump Type:		Pipe Discharge Size:		Estimated Yield:	
Casing Size:		Depth Well:	55	Depth Water:	

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# Water Right Summary



[get image](#)  
[list](#)

WR File Number:	C 04820	Subbasin:	CUB	Cross Reference:
Primary Purpose:	MON MONITORING WELL			
Primary Status:	PMT Permit			
Total Acres:		Subfile:	Header:	
Total Diversion:	0.000	Cause/Case:		
Owner:	DEVON ENERGY			
Contact:	DALE WOODALL			

## Documents on File

(acre-feet per annum)

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres	Diversion	Consumptive
<a href="#">get images</a>	<a href="#">757962</a>	EXPL	2024-04-01	PMT	APR	C 04820 POD1	T	0.000	0.000	

## Current Points of Diversion

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
<a href="#">C 04820 POD1</a>	NA		NE	NW	NW	13	26S	34E	648389.9	3547088.9		

\* UTM location was derived from PLSS - see Help





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Transaction Summary

EXPL   Permit To Explore

Transaction Number:	757962	Transaction Desc:	C 04820 POD1	File Date:	2024-03-21
Primary Status:	PMT Permit				
Secondary Status:	APR Approved				
Person Assigned:	*****				
User:	DEVON ENERGY				
Contact:	DALE WOODALL				


Events

Event Images	Date	Type	Description	Comment	Processed By
 <a href="#">_get images</a>	2024-03-21	APP	Application Received	*	*****
 <a href="#">_get images</a>	2024-03-21	TEC	Technical Report	*PLG PLN OPS C 04820 POD1	*****
	2024-04-01	FTN	Finalize non-published Trans.		*****
 <a href="#">_get images</a>	2024-04-25	LOG	Well Log Received	*DRY HOLE	*****
	2024-04-25	DRY	Dry well log received		*****
 <a href="#">_get images</a>	2024-04-25	LGI	Well Log Image	*PLG RECORD C 04820 POD1	*****
	2024-05-16	QAT	Quality Assurance Completed	DATA	*****
	2024-05-20	QAT	Quality Assurance Completed	IMAGE	*****
	2024-05-30	QAT	Quality Assurance Completed	DATA	*****
	2024-06-04	QAT	Quality Assurance Completed	IMAGE	*****

Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 04820	0.000	0.000		EXP EXPLORATION

Point of Diversion

POD Nbr	Easting	Northing	Map	Grant
C 04820 POD1	648390.5	3547088.0		

---

**Conditions:**

- 1A** Depth of the well shall not exceed the thickness of the valley fill.
- 4** No water shall be appropriated and beneficially used under this permit.
- B** The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.
- C** The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record. The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.
- 6** The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable.
- 7** The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.
- 16** Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the landowner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths inches outside diameter.
- P** The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.
- Q** The State Engineer retains jurisdiction over this permit.
- R** Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

---

**Action of the State Engineer**

**\*\* See Image For Any Additional Conditions of Approval \*\***

**Approval Code:** A

**Action Date:** 2024-04-01

**Short Condition:** IT IS THE PERMITTEE'S RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

**Log Due Date:** 2025-04-01

**State Engineer:** Mike A. Hamman, P.E.

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# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

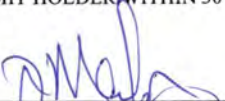

[www.ose.state.nm.us](http://www.ose.state.nm.us)

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) C-04820 <b>Pod 1</b>		WELL TAG ID NO.		OSE FILE NO(S). C-4820			
	WELL OWNER NAME(S) Devon Energy Resources				PHONE (OPTIONAL)			
	WELL OWNER MAILING ADDRESS 205 E. Bender Road #150				CITY Hobbs	STATE NM	ZIP 88240	
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 3	SECONDS 01.0 N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84			
		LONGITUDE -103	25	41.6 W				
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE								
2. DRILLING & CASING INFORMATION	LICENSE NO. 1833		NAME OF LICENSED DRILLER Jason Maley			NAME OF WELL DRILLING COMPANY Vision Resources		
	DRILLING STARTED 4-17-24		DRILLING ENDED 4-17-24		DEPTH OF COMPLETED WELL (FT) 55'	BORE HOLE DEPTH (FT) 55'	DEPTH WATER FIRST ENCOUNTERED (FT) N/A	
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN *add Centralizer info below <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) 0'	DATE STATIC MEASURED 4-22-24	
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:						CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>	
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	45	6"	PVC 2" SCH40	Thread	2"	SCH40	N/A
	45	55	6"	PVC 2" SCH40	Thread	2"	SCH40	.02
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
	FROM	TO						
				None pulled and plugged				

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO. C-04820	POD NO. 1	TRN NO. 757962
LOCATION 265. 34E. 13. 211	WELL TAG ID NO.	PAGE 1 OF 2

	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES <b>(attach supplemental sheets to fully describe all units)</b>	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)	
	FROM	TO					
<b>4. HYDROGEOLOGIC LOG OF WELL</b>	0	10	10'	Brown dirt with white caliche	Y    ✓ N		
	10	30	20'	red coarse sand with small rock	Y    ✓ N		
	30	55	25'	Tan fine sand	Y    ✓ N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
					Y    N		
	METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input type="checkbox"/> OTHER – SPECIFY: Dry hole					TOTAL ESTIMATED WELL YIELD (gpm): 0	
	<b>5. TEST; RIG SUPERVISION</b>	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
MISCELLANEOUS INFORMATION:							
PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Jason Maley							
<b>6. SIGNATURE</b>	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:						
	 _____ SIGNATURE OF DRILLER / PRINT SIGNEE NAME			Jason Maley <div style="text-align: right;">               DATE           </div>			

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 09/22/2022)	
FILE NO. C-04820	POD NO. 1	TRN NO. 757962	
LOCATION 765 34E 13.311	WELL TAG ID NO.		PAGE 2 OF 2

Mike A. Hamman, P.E.  
State Engineer



Roswell Office  
1900 WEST SECOND STREET  
ROSWELL, NM 88201

**STATE OF NEW MEXICO  
OFFICE OF THE STATE ENGINEER**

Trn Nbr: 757962  
File Nbr: C 04820  
Well File Nbr: C 04820 POD1

Apr. 25, 2024

DALE WOODALL  
DEVON ENERGY  
205 E BENDER ROAD #150  
HOBBS, NM 88240

Greetings:

The above numbered permit was issued in your name on 04/01/2024.

The Well Record was received in this office on 04/25/2024, stating that it had been completed on 04/17/2024, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 04/01/2025.

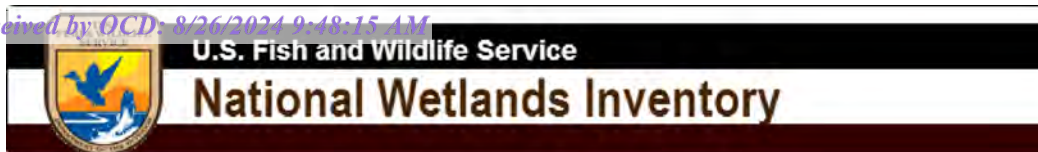
If you have any questions, please feel free to contact us.

Sincerely,

A handwritten signature in cursive script, appearing to read "Rodolfo Chavez".

Rodolfo Chavez  
(575) 622-6521

drywell



## Ragin Cajun 12 Federal 3H Watercourse



May 18, 2023

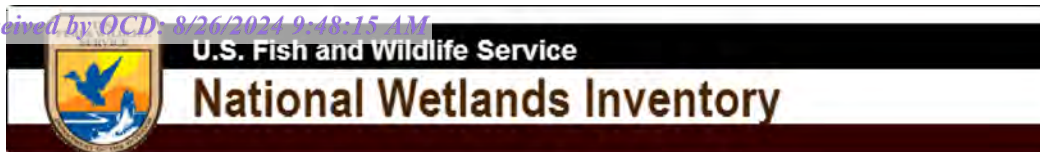
**Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

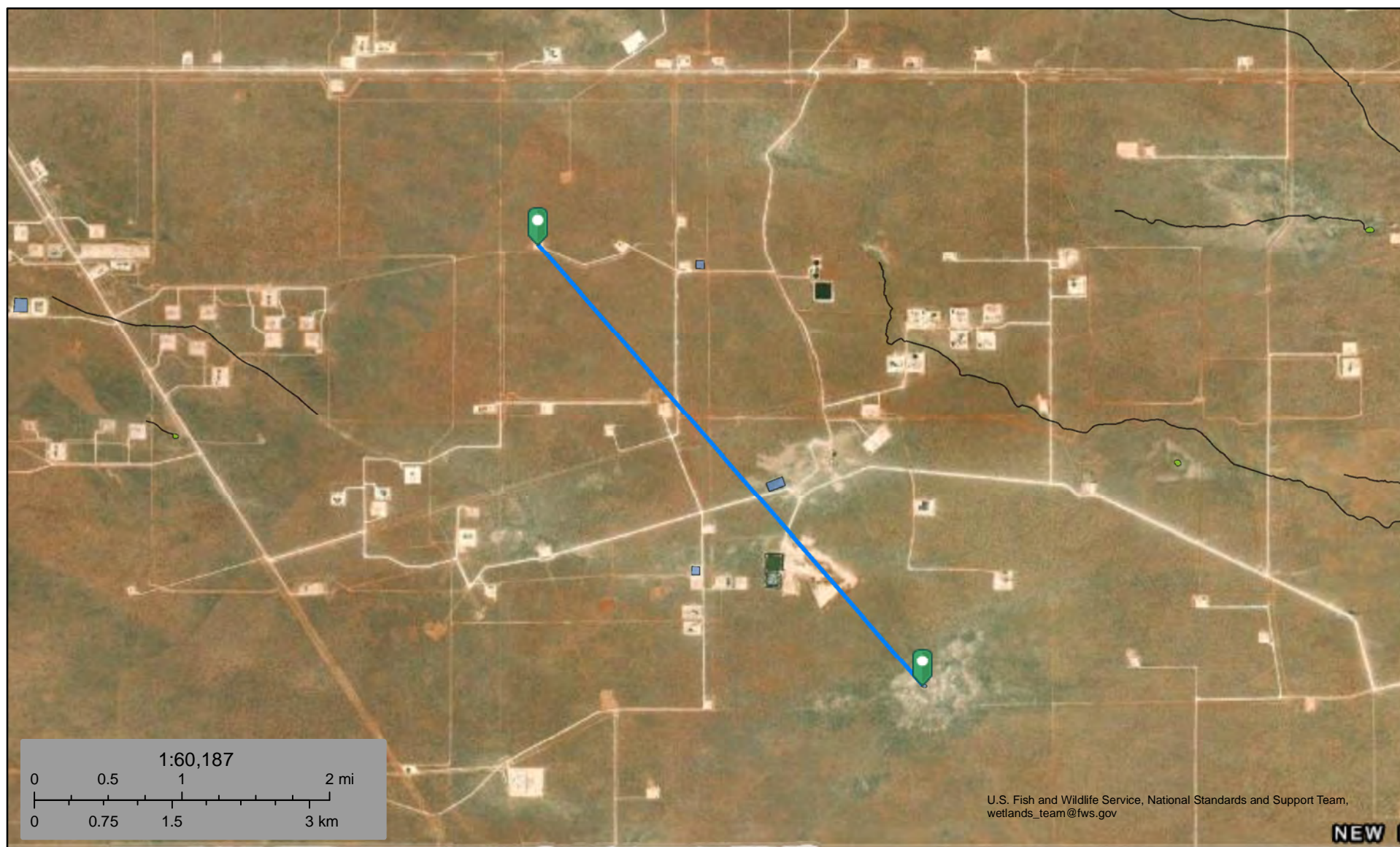
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- 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.



## Ragin Cajun 12 Federal 3H Lake



May 18, 2023

**Wetlands**

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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







- Lake
- Other
- Riverine

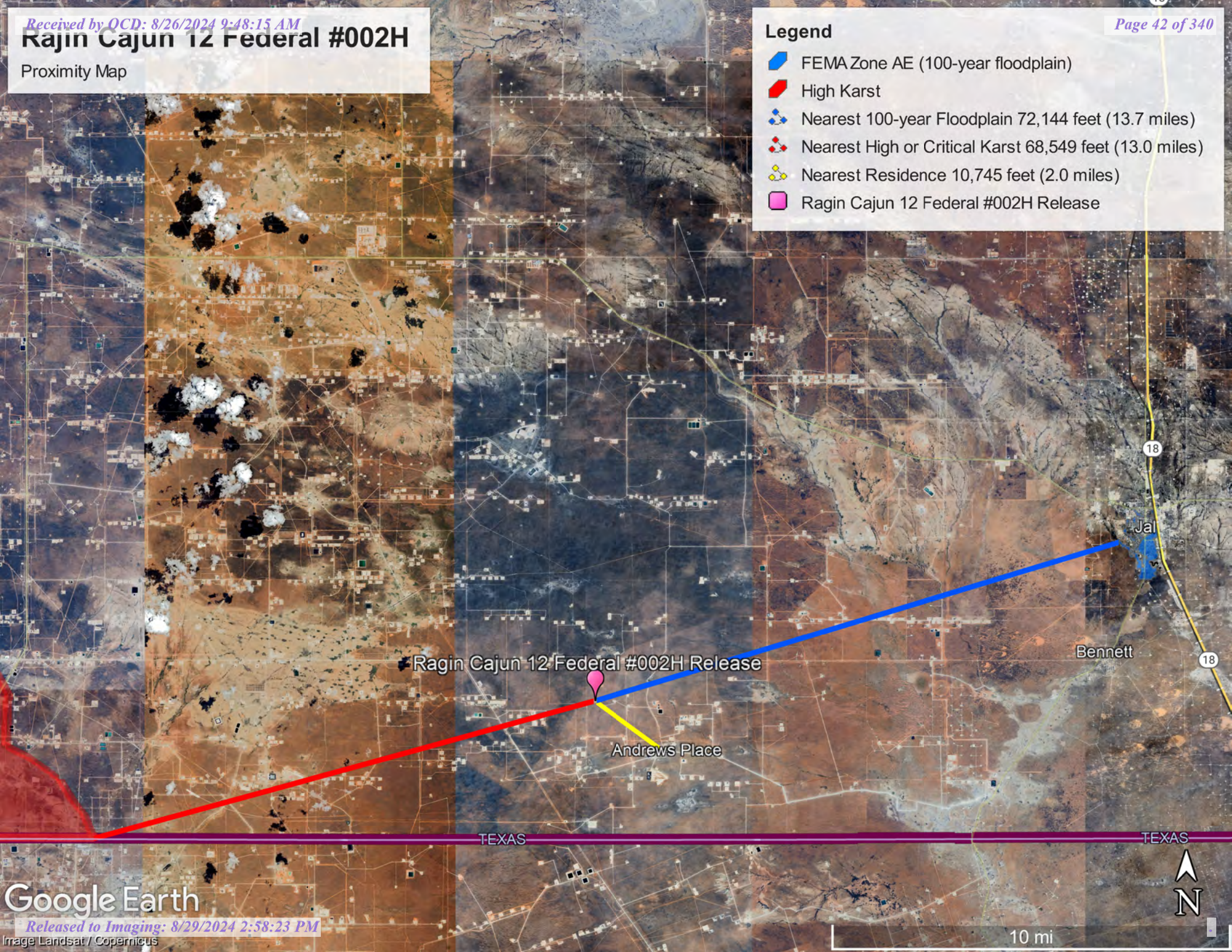
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

# Ragin Cajun 12 Federal #002H

Proximity Map

## Legend

-  FEMA Zone AE (100-year floodplain)
-  High Karst
-  Nearest 100-year Floodplain 72,144 feet (13.7 miles)
-  Nearest High or Critical Karst 68,549 feet (13.0 miles)
-  Nearest Residence 10,745 feet (2.0 miles)
-  Ragin Cajun 12 Federal #002H Release



Ragin Cajun 12 Federal #002H Release

Andrews Place

Bennett

Jai

TEXAS

TEXAS

Google Earth

Released to Imaging: 8/29/2024 2:58:23 PM

Image Landsat / Copernicus

10 mi



# Nearest Active OSE POD



8/2/2024, 5:36:13 AM

GIS WATERS PODs

- Active
- Pending

● Plugged

□ OSE District Boundary

Water Right Regulations

□ Closure Area

New Mexico State Trust Lands

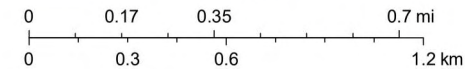
□ Subsurface Estate

□ Both Estates

□ NHD Flowlines

— Stream River

1:18,056



Esri, HERE, IPC, Esri, HERE, Garmin, IPC, Maxar

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

Active & Inactive Points of Diversion  
(with Ownership Information)

(acre ft per annum)					(R=POD has been replaced and no longer serves this file, C=the file is closed)					(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)					(NAD83 UTM in meters)					(meters)	
WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q64	q16	q4	Sec	Tws	Range	X	Y	Map	Distance	
<a href="#">C 04820</a>	CUB	MON	0.000	DEVON ENERGY	LE	<a href="#">C 04820 POD1</a>	NA				NE	NW	NW	13	26S	34E	648389.9	3547088.9		43.9	
<a href="#">C 04817</a>	CUB	MON	0.000	DEVON ENERGY RESOURCES	LE	<a href="#">C 04817 POD1</a>	NA				SW	SE	SW	13	26S	34E	648499.2	3545657.3		1,473.8	
<a href="#">C 04852</a>	CUB	EXP	0.000	RAYBAW OPERATING, LLC	LE	<a href="#">C 04852 POD1</a>	NA				NE	NW	NE	24	26S	34E	649057.5	3545374.4		1,882.6	
<a href="#">C 04791</a>	CUB	MON	0.000	DEVON ENERGY RESOURCES	LE	<a href="#">C 04791 POD1</a>	NA				SE	SE	SE	13	26S	34E	649598.8	3545568.0		1,986.6	
<a href="#">C 04856</a>	CUB	EXP	0.000	DEVON ENERGY PRODUCTION COMPANY	LE	<a href="#">C 04856 POD1</a>	NA				NE	SW	NE	23	26S	34E	647550.6	3544940.3		2,331.6	
<a href="#">C 04809</a>	CUB	MON	0.000	DEVON ENERGY PRODUCTION CO.	LE	<a href="#">C 04809 POD1</a>	NA				NE	NE	NE	26	26S	34E	647948.9	3543876.1		3,275.4	
<a href="#">C 04846</a>	CUB	MON	0.000	DEVON ENERGY CORP.	LE	<a href="#">C 04846 POD1</a>	NA				SW	NE	NW	06	26S	35E	650048.2	3550110.5		3,427.3	
<a href="#">C 04710</a>	CUB	MON	0.000	DEVON ENERGY	LE	<a href="#">C 04710 POD1</a>	NA				SE	SE	SE	22	26S	34E	646399.7	3543956.9		3,728.2	
<a href="#">C 04583</a>	CUB	MON	0.000	LUCID ENERGY GROUP	LE	<a href="#">C 04583 POD1</a>	NA				SW	SW	SW	15	26S	34E	644919.7	3545643.4		3,750.4	
<a href="#">C 04601</a>	CUB	MON	0.000	MARATHON OIL	LE	<a href="#">C 04601 POD1</a>	NA				SW	SE	SW	05	26S	35E	651709.8	3548919.7		3,795.9	
<a href="#">C 04836</a>	CUB	MON	0.000	DEVON ENERGY PRODUCTION COMPAN	LE	<a href="#">C 04836 POD1</a>	NA				SE	SE	SE	21	26S	34E	644618.7	3543853.3		4,973.8	

**Record Count:** 11

**Filters Applied:**

**UTM Filters (in meters):**

**Easting:** 648365

**Northing:** 3547125

**Radius:** 005000

**Sorted By:** Distance


\* UTM location was derived from PLSS - see Help

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# 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 Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
NA	C 04583 POD1	SW	SW	SW	15	26S	34E	644919.7	3545643.4	

\* UTM location was derived from PLSS - see Help

Driller License:	1249	Driller Company:	ATKINS ENGINEERING ASSOC. INC.
Driller Name:	JACKIE D ATKINS		
Drill Start Date:	2022-01-04	Drill Finish Date:	2022-01-04
Log File Date:	2022-02-04	PCW Rcv Date:	
Pump Type:		Pipe Discharge Size:	
Casing Size:		Depth Well:	55

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# Water Right Summary



[get image](#)  
[list](#)

WR File Number:	C 04583	Subbasin:	CUB	Cross Reference:
Primary Purpose:	MON MONITORING WELL			
Primary Status:	PMT Permit			
Total Acres:		Subfile:	Header:	
Total Diversion:	0.000	Cause/Case:		
Owner:	LUCID ENERGY GROUP			
Contact:	MICHAEL GANT			

## Documents on File

(acre-feet per annum)

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres	Diversion	Consumptive
<a href="#">get images</a> <a href="#">713387</a>		EXPL	2021-12-20	PMT	APR	C 04583 POD1	T	0.000	0.000	

## Current Points of Diversion

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
<a href="#">C 04583 POD1</a>	NA		SW	SW	SW	15	26S	34E	644919.7	3545643.4		

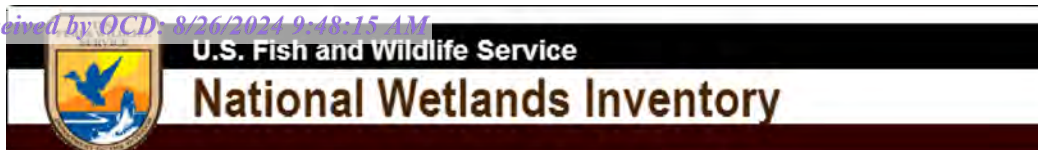
\* UTM location was derived from PLSS - see Help

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8/2/24 5:04 AM MST

Water Rights Summary

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## Ragin Cajun 12 Federal 3H Wetland



May 18, 2023

**Wetlands**

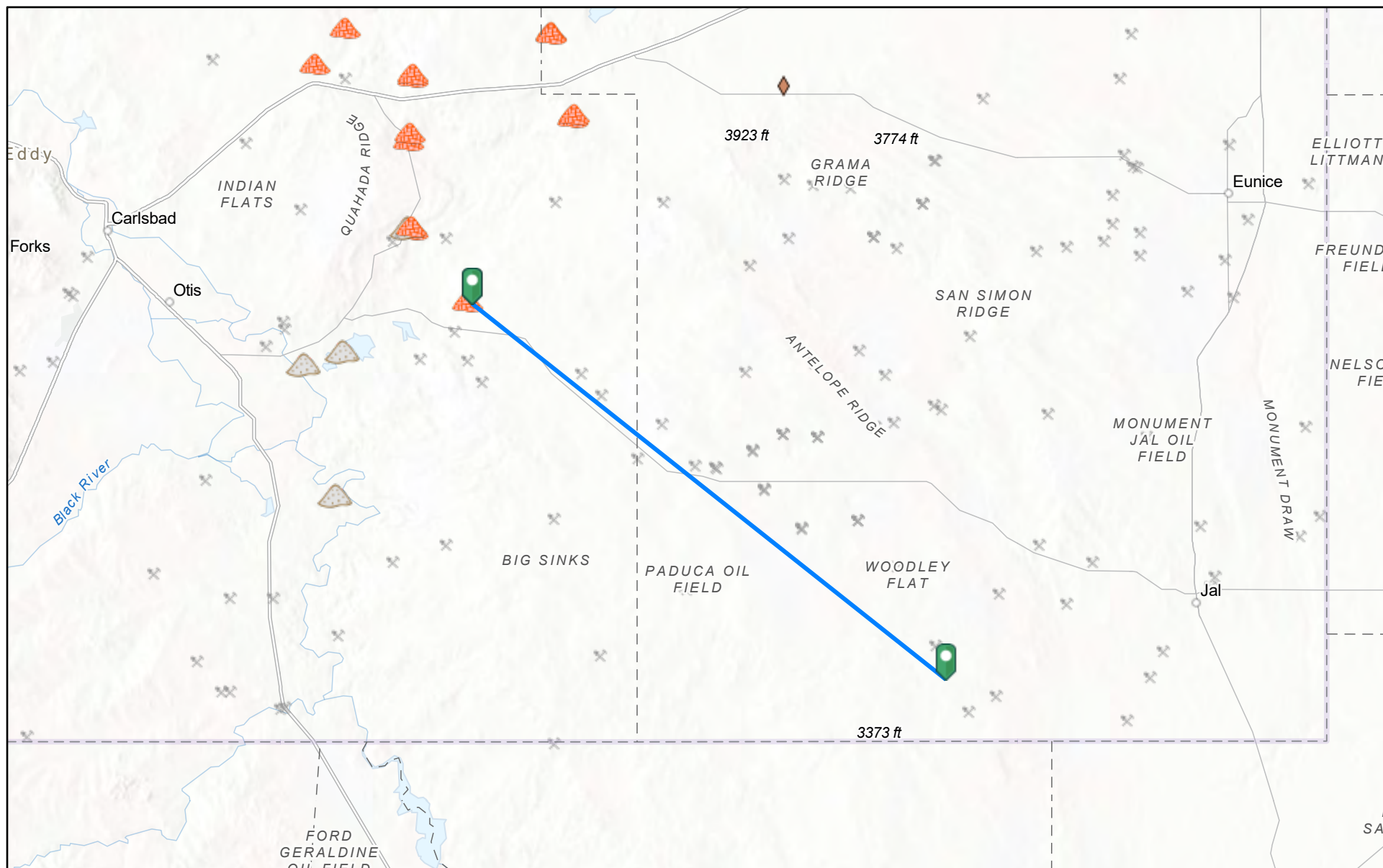
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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

- Lake
- Other
- Riverine

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## Ragin Cajun 12 Federal 2H 33.7 miles from Subsurface mine



2/2/2024, 2:44:07 PM

Registered Mines

Aggregate, Stone etc.

Aggregate, Stone etc.



Aggregate, Stone etc.



Aggregate, Stone etc.



Industrial Minerals (Other)



Potash



Salt

1:577,791

0 4.25 8.5 17 mi

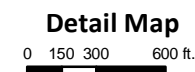
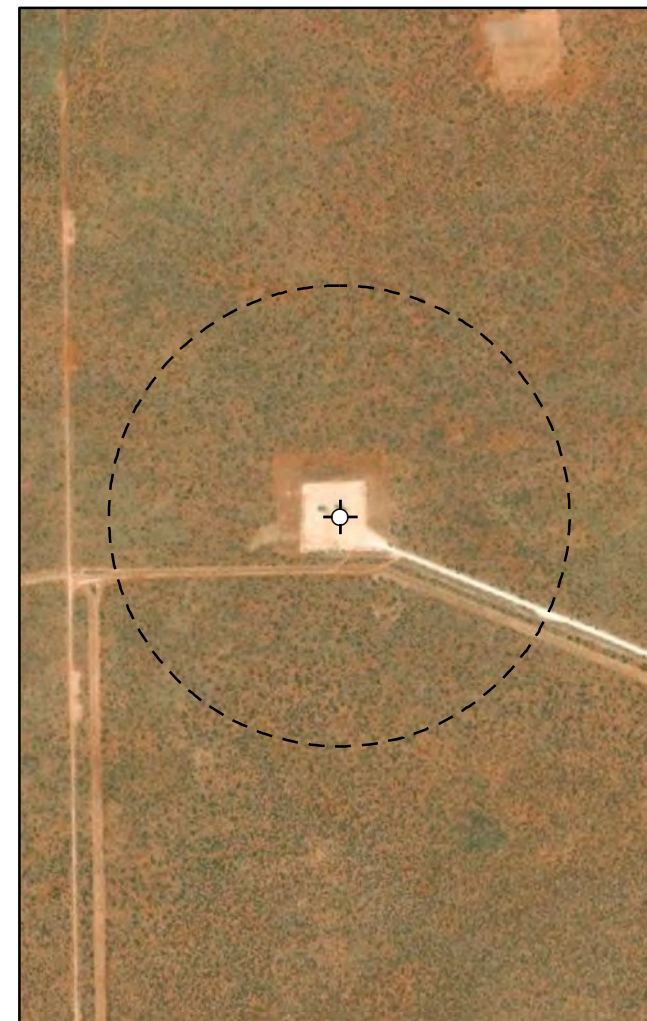
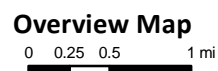
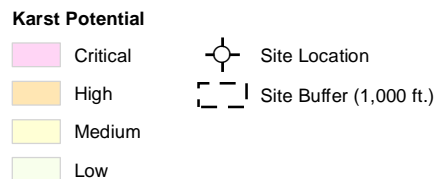
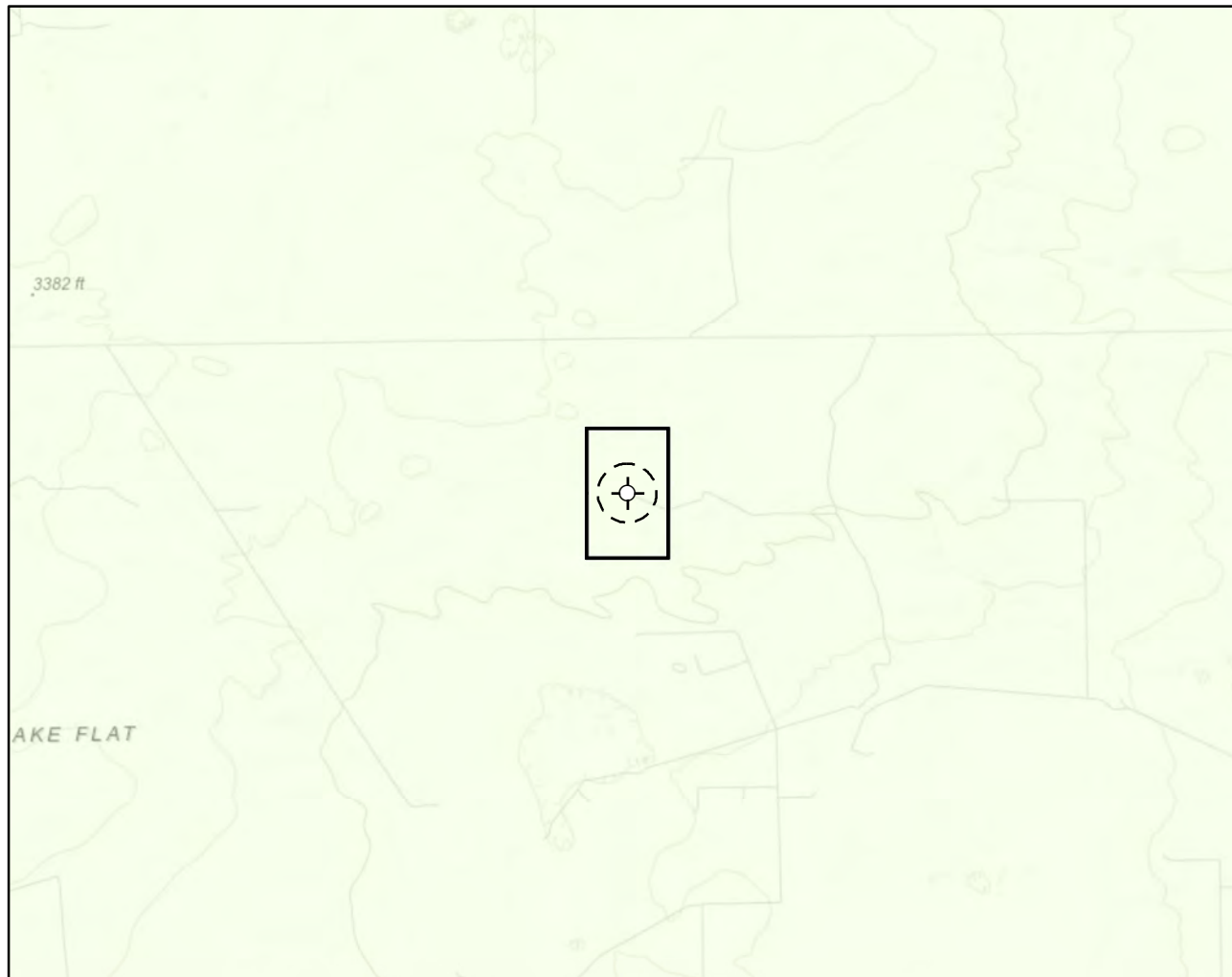
0 5 10 20 km

Texas Parks &amp; Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, Esri, CGIAR, USGS

EMNRD MMD GIS Coordinator

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

Document Path: \\vks-4s01.corp.internal\shared\ps04 - Geomatics\1 - Projects\US PROJECT\S\Devon Energy Corporation\2023\23E-02965 - Ragin Cajun 12 Federal #003H\Figure X Karst Potential Schematic Ragin Cajun 12 Federal #003H.mxd



Map Center:  
Lat/Long: 32.050609, -103.428485

NAD 1983 UTM Zone 13N  
Date: Jun 01/23



**Karst Potential Schematic  
Ragin Cajun 12 Federal #002H**

FIGURE:

X



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

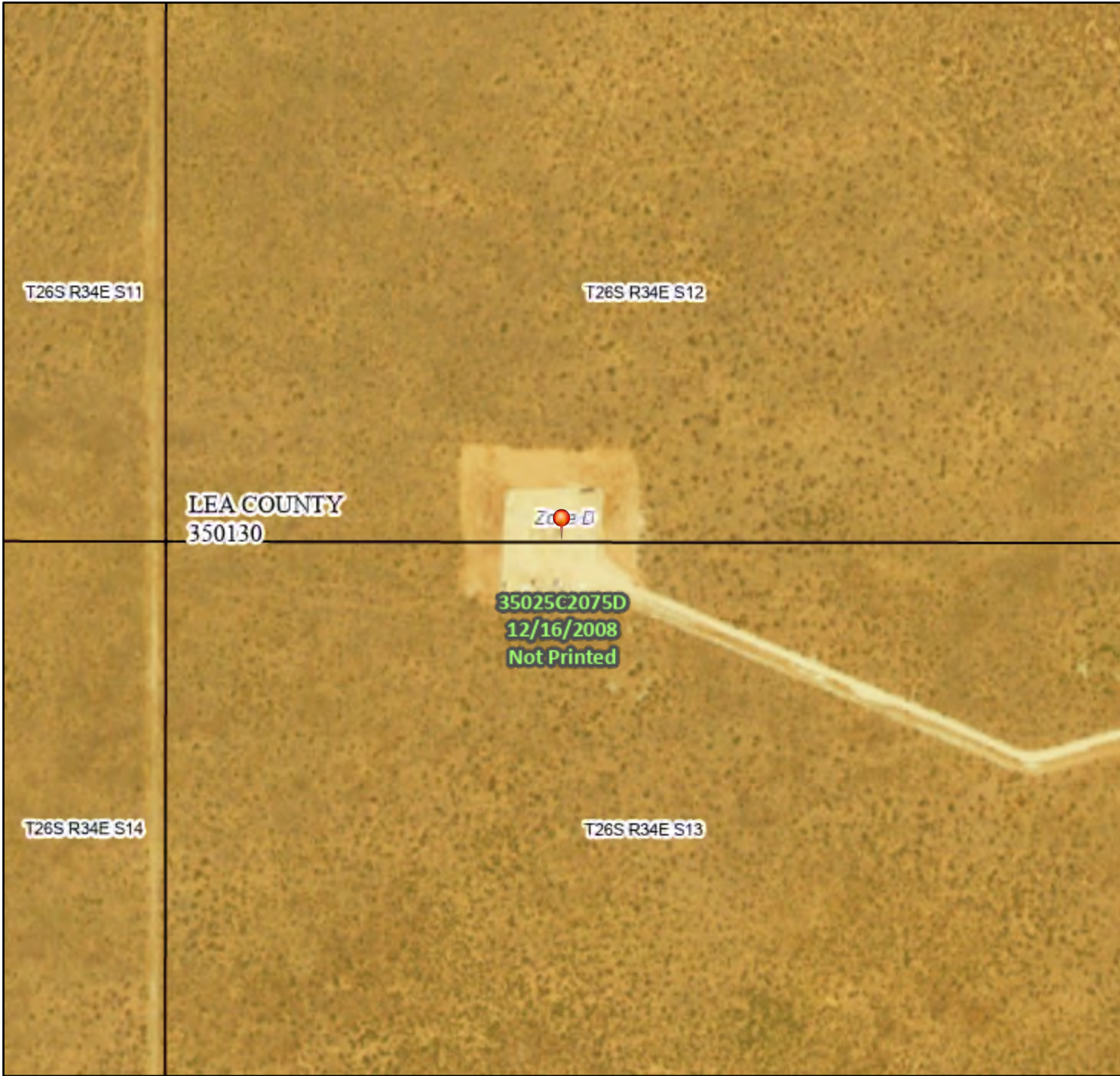
Note: Inset Map, ESRI 2022; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

VERSATILITY. EXPERTISE.

# National Flood Hazard Layer FIRMette



103°26'1"W 32°3'17"N



## Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		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 Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
MAP PANELS		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/18/2023 at 7:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

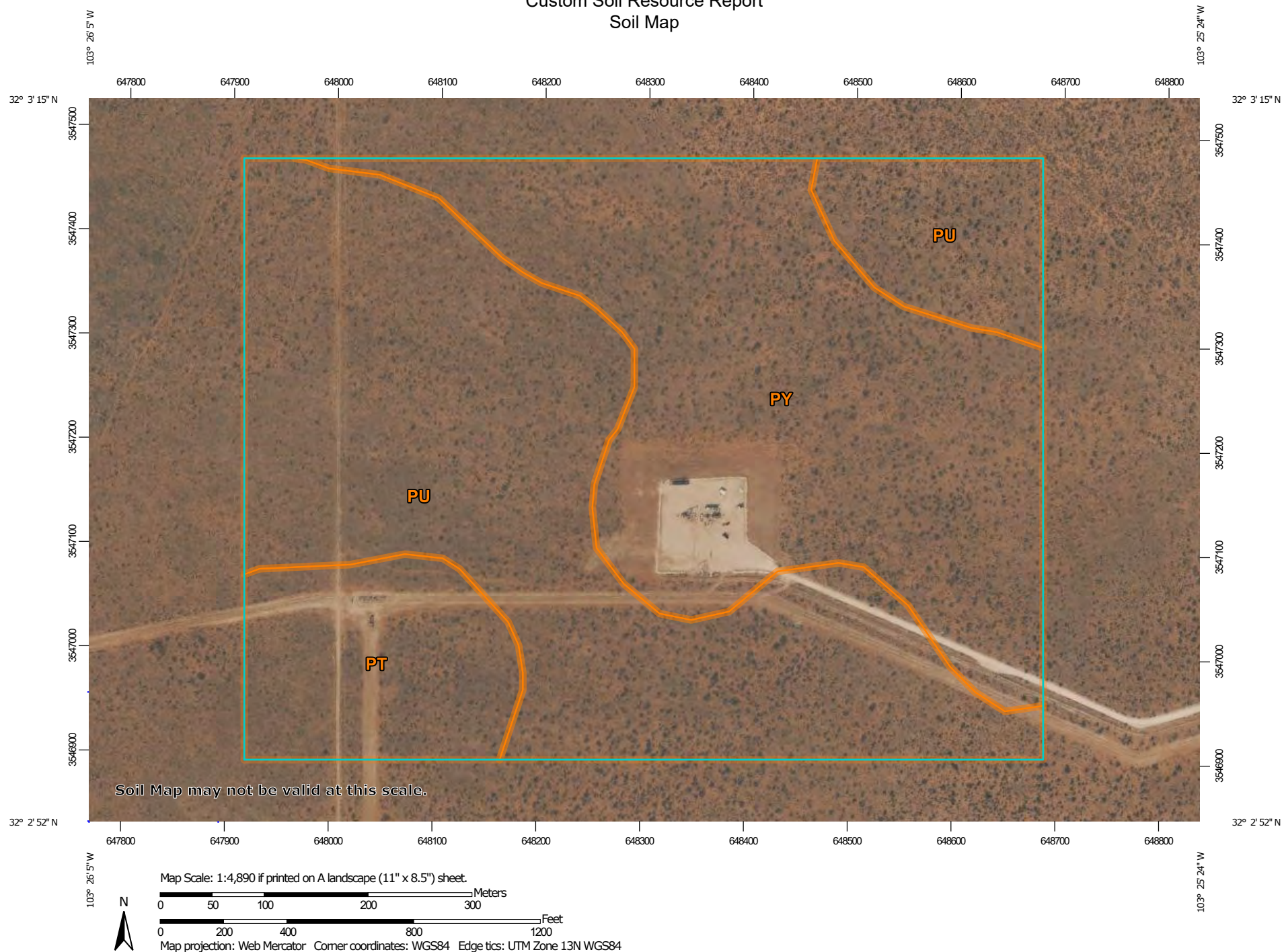
A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Lea County, New Mexico**



January 23, 2024


# Custom Soil Resource Report Soil Map



## Custom Soil Resource Report

## MAP LEGEND

## Area of Interest (AOI)

 Area of Interest (AOI)


## Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

## Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip


 Sodic Spot

 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

## Water Features

 Streams and Canals

## Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

## Background

 Aerial Photography

## MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lea County, New Mexico  
Survey Area Data: Version 20, Sep 6, 2023

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

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

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

## Custom Soil Resource Report

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PT	Pyote loamy fine sand	11.7	10.7%
PU	Pyote and Maljamar fine sands	55.7	50.6%
PY	Pyote soils and Dune land	42.7	38.7%
<b>Totals for Area of Interest</b>		<b>110.1</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

## Custom Soil Resource Report

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.

## Custom Soil Resource Report

## Lea County, New Mexico

## PT—Pyote loamy fine sand

## Map Unit Setting

*National map unit symbol:* dmqp

*Elevation:* 3,000 to 3,900 feet

*Mean annual precipitation:* 10 to 12 inches

*Mean annual air temperature:* 60 to 62 degrees F

*Frost-free period:* 190 to 200 days

*Farmland classification:* Farmland of statewide importance

## Map Unit Composition

*Pyote and similar soils:* 85 percent

*Minor components:* 15 percent

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

## Description of Pyote

## Setting

*Landform:* Plains

*Landform position (three-dimensional):* Rise

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Sandy eolian deposits derived from sedimentary rock

## Typical profile

*A - 0 to 25 inches:* loamy fine sand

*Bt - 25 to 60 inches:* fine sandy loam

## Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Gypsum, maximum content:* 1 percent

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

*Sodium adsorption ratio, maximum:* 2.0

*Available water supply, 0 to 60 inches:* Low (about 5.3 inches)

## Interpretive groups

*Land capability classification (irrigated):* 6e

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* A

*Ecological site:* R070BD003NM - Loamy Sand

*Hydric soil rating:* No

## Custom Soil Resource Report

**Minor Components****Maljamar***Percent of map unit: 8 percent**Ecological site: R070BD003NM - Loamy Sand**Hydric soil rating: No***Palomas***Percent of map unit: 7 percent**Ecological site: R070BD003NM - Loamy Sand**Hydric soil rating: No***PU—Pyote and Maljamar fine sands****Map Unit Setting***National map unit symbol: dmqq**Elevation: 3,000 to 3,900 feet**Mean annual precipitation: 10 to 12 inches**Mean annual air temperature: 60 to 62 degrees F**Frost-free period: 190 to 205 days**Farmland classification: Not prime farmland***Map Unit Composition***Pyote and similar soils: 46 percent**Maljamar and similar soils: 44 percent**Minor components: 10 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Pyote****Setting***Landform: Plains**Landform position (three-dimensional): Rise**Down-slope shape: Linear**Across-slope shape: Linear**Parent material: Sandy eolian deposits derived from sedimentary rock***Typical profile***A - 0 to 30 inches: fine sand**Bt - 30 to 60 inches: fine sandy loam***Properties and qualities***Slope: 0 to 3 percent**Depth to restrictive feature: More than 80 inches**Drainage class: Well drained**Runoff class: Negligible**Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)**Depth to water table: More than 80 inches**Frequency of flooding: None*

## Custom Soil Resource Report

*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Gypsum, maximum content:* 1 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 2.0  
*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

**Interpretive groups**

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

**Description of Maljamar****Setting**

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

**Typical profile**

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

**Properties and qualities**

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

**Interpretive groups**

*Land capability classification (irrigated):* 6e  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* B  
*Ecological site:* R070BC022NM - Sandhills  
*Hydric soil rating:* No

**Minor Components****Kermit**

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

## Custom Soil Resource Report

**PY—Pyote soils and Dune land****Map Unit Setting**

*National map unit symbol:* dmqr  
*Elevation:* 3,000 to 4,400 feet  
*Mean annual precipitation:* 10 to 15 inches  
*Mean annual air temperature:* 60 to 64 degrees F  
*Frost-free period:* 190 to 220 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

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

**Description of Pyote****Setting**

*Landform:* Depressions  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Parent material:* Sandy eolian deposits derived from sedimentary rock

**Typical profile**

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

**Properties and qualities**

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

**Interpretive groups**

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

## Custom Soil Resource Report

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

**Description of Dune Land****Setting**

Landform: Dunes  
Landform position (two-dimensional): Backslope, shoulder  
Landform position (three-dimensional): Side slope  
Down-slope shape: Convex, linear  
Across-slope shape: Convex  
Parent material: Sandy eolian deposits derived from sedimentary rock

**Typical profile**

A - 0 to 6 inches: fine sand  
C - 6 to 60 inches: fine sand

**Interpretive groups**

Land capability classification (irrigated): None specified  
Land capability classification (nonirrigated): 8  
Hydrologic Soil Group: A  
Hydric soil rating: No

**Minor Components****Kermi**

Percent of map unit: 5 percent  
Ecological site: R070BC022NM - Sandhills  
Hydric soil rating: No

**Maljamar, fine sand**

Percent of map unit: 3 percent  
Ecological site: R070BD003NM - Loamy Sand  
Hydric soil rating: No

**Wink**

Percent of map unit: 2 percent  
Ecological site: R070BD003NM - Loamy Sand  
Hydric soil rating: No



# Ecological site R070BD003NM Loamy Sand

Accessed: 10/18/2023

## 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	<b>Sandy</b> Sandy
R070BD005NM	<b>Deep Sand</b> Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

## Physiographic features

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

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

Table 2. Representative physiographic features

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

## Climatic features

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

The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

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

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

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

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

Characteristic soils are:

- Maljamar
- Berino
- Parjarito
- Palomas
- Wink
- Pyote

Table 4. Representative soil features

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

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

## Ecological dynamics

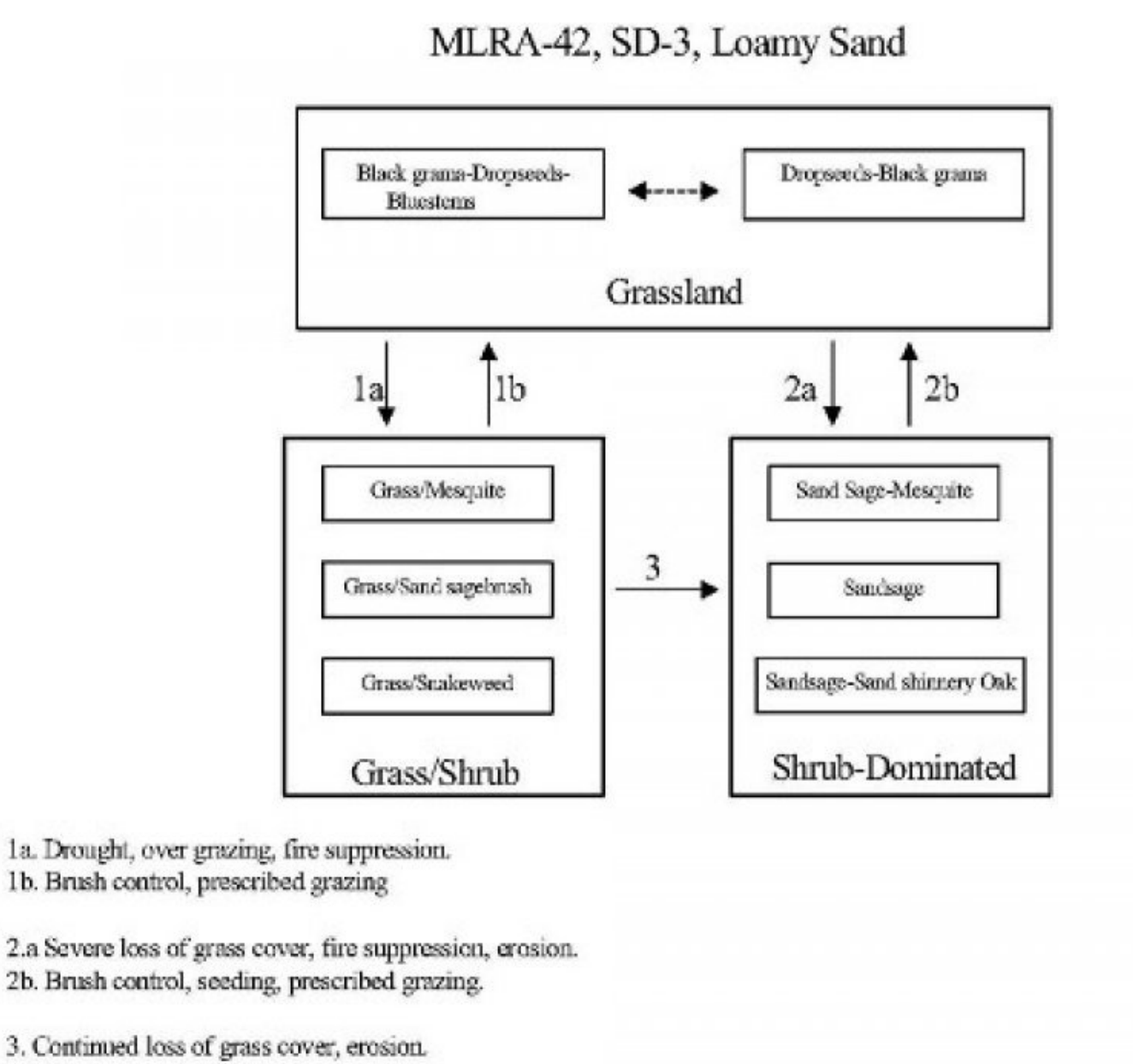
### Overview

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

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

## State and transition model

Plant Communities and Transitional Pathways (diagram):



State 1  
Historic Climax Plant Community

Community 1.1  
Historic Climax Plant Community

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

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

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

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

State 2  
Grass/Shrub

Community 2.1  
Grass/Shrub



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

### **State 3 Shrub Dominated**

#### **Community 3.1 Shrub Dominated**

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

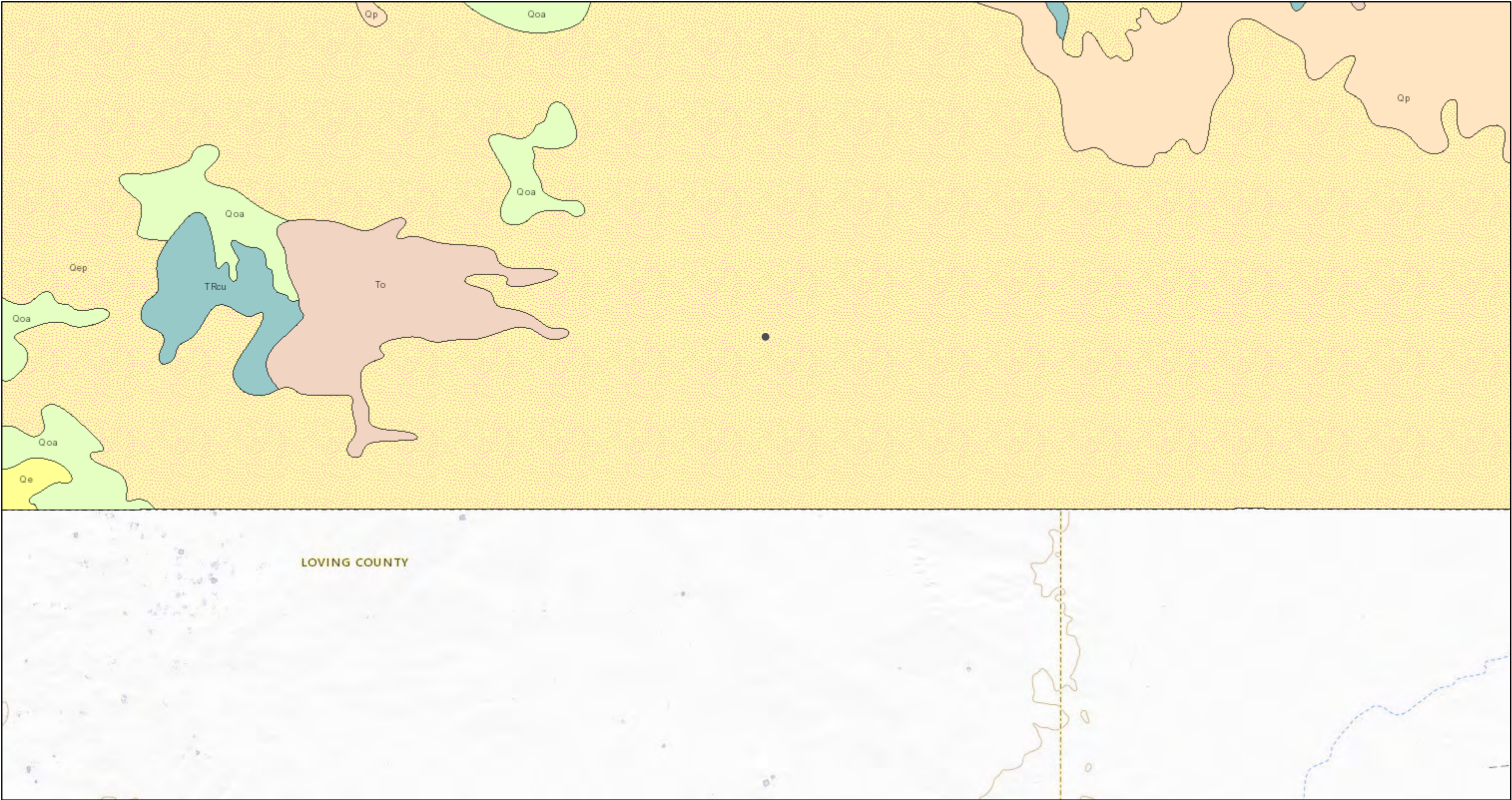
aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased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

## Additional community tables

Table 7. Community 1.1 plant community composition

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

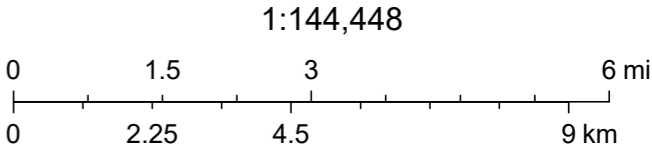
# Ragin Cajun 12 Federal 3H



5/18/2023, 5:36:23 PM

- Lithologic Units
- Playa—Alluvium and evaporite deposits (Holocene)
  - Water—Perennial standing water
  - Qa—Alluvium (Holocene to upper Pleistocene)
  - Ql—Landslide deposits and colluvium (Holocene to Pleistocene) — Landslide deposits on western flanks of Socorro Mountains not shown for clarity
  - Qpl—Lacustrine and playa deposits (Holocene) — Includes associated alluvial and eolian deposits of major lake basins
  - Qp—Piedmont alluvial deposits (Holocene to lower Pleistocene)
  - Qe—Eolian deposits (Holocene to middle Pleistocene)

Qeg—Gypsiferous eolian deposits (Holocene to middle Pleistocene)



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

## **APPENDIX C – Daily Field Reports**



## Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/6/2023
Site Location Name:	Ragin Cajun 12 Federal #003H	Report Run Date:	6/7/2023 12:39 AM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

### Summary of Times

Arrived at Site 6/6/2023 10:30 AM

Departed Site 6/6/2023 4:30 PM

### Field Notes

**11:27** On site. Completed safety meeting, began sampling 1100 hrs

**11:28** Collected BH23-01 and BH23-02 at 0' and 2'

**14:28** Collecting BH23-07 and 08

**16:12** Screened all samples through BH23-08, prepared 16 samples for lab

### Next Steps & Recommendations

1 Complete delineation

# Daily Site Visit Report



## Site Photos

Viewing Direction: Southeast



Extended one call area

Viewing Direction: East



BH23-01 through BH23-04

Viewing Direction: East



BH23-01 through BH23-08



Viewing Direction: West



BH23-01 through BH23-08



## Daily Site Visit Report

Viewing Direction: Northwest	Viewing Direction: North
 <p>Descriptive Photo - 8 Viewing Direction: Northwest Date: Extended one call area Created: 8/7/2023 4:11:06 PM Latitude: 33.0000, Longitude: -103.0000</p>	 <p>Descriptive Photo - 8 Viewing Direction: North Date: Spill area Created: 8/7/2023 4:11:17 PM Latitude: 33.0000, Longitude: -103.0000</p>
Extended one call area	Spill area

## Daily Site Visit Report



Daily Site Visit Signature

**Inspector:** Sally Carttar

**Signature:**

Signature A handwritten signature in black ink, consisting of a large, stylized 'S' followed by a cursive 'C' and a horizontal line extending to the right.



## Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	12/7/2023
Site Location Name:	Ragin Cajun 12 Federal #003H	Report Run Date:	12/7/2023 11:51 PM
Client Contact Name:	Jim Raley	API #:	
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

### Summary of Times

Arrived at Site 12/7/2023 8:00 AM

Departed Site 12/7/2023 3:00 PM

### Field Notes

**14:34** Completed safety paperwork and initial line locate upon arrival to site

**14:34** On site to continue delineation of historical releases near north side of pad and south of pump jacks

**14:35** Obtained:

BH23-07 at 4' depth.

BH23-11, 12 and 13 on north side of berm immediately north of pad at 0' and 2' depths to encapsulate horizontal area off pad.

**14:37** Obtained:

BH23-14 to 21 in the historical release area immediately south of pump jacks all at 0' and 2' depths.

Took BH23-20 to 3.5' hitting refusal.

**14:38** Immediate surface material is very yellow in color and soft, an indication of contamination.

Field screens confirmed high contamination in both TPH and Chloride.

### Next Steps & Recommendations

1 Continue delineation

## Daily Site Visit Report



## Site Photos

Viewing Direction: South



BH23-07

Viewing Direction: Southeast



BH23-11

Viewing Direction: South



BH23-12

Viewing Direction: Southwest



BH23-13



## Daily Site Visit Report

Viewing Direction: West



BH23-14

Viewing Direction: West



BH23-15

Viewing Direction: West



BH23-16

Viewing Direction: West



BH23-17



## Daily Site Visit Report

Viewing Direction: West



BH23-18

Viewing Direction: West



BH23-19

Viewing Direction: East



BH23-20

Viewing Direction: South



BH23-21

## Daily Site Visit Report



Daily Site Visit Signature

**Inspector:** Austin Harris

**Signature:**

A handwritten signature in black ink, appearing to be 'AH' with a large loop, written over a horizontal line.

Signature



## Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	12/11/2023
Site Location Name:	Ragin Cajun 12 Federal #003H	Report Run Date:	12/12/2023 12:23 AM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

### Summary of Times

Arrived at Site	12/11/2023 9:32 AM
Departed Site	12/11/2023 2:38 PM

### Field Notes

**10:00** Held safety meeting, ran line locator.

**13:55** Gathered samples 45 through 53 at surface and 2'.

**13:56** Tested samples for chlorides and hydrocarbons. Most samples were clean but some tested high for chlorides at surface.

**13:56** Clean boundaries for the delineation were found and delineation is complete.

### Next Steps & Recommendations

1

## Daily Site Visit Report



## Site Photos

Viewing Direction: North



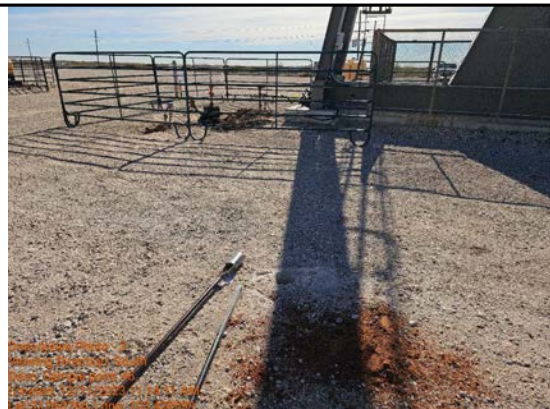
Placard

Viewing Direction: South



Sample point 45.

Viewing Direction: South



Sample point 46.

Viewing Direction: Northwest



Sample point 47.



## Daily Site Visit Report

Viewing Direction: Northwest



Sample point 48.

Viewing Direction: Northwest



Sample point 49.

Viewing Direction: Northwest



Sample point 50.

Viewing Direction: Northeast



Sample point 51.



## Daily Site Visit Report

Viewing Direction: North



Sample point 52.

Viewing Direction: Northwest



Sample point 53.

## Daily Site Visit Report



Daily Site Visit Signature

**Inspector:** Zachery Englebert

**Signature:**

A handwritten signature in black ink, appearing to read 'Zachery Englebert', written over a horizontal line. Below the line, the word 'Signature' is printed in a small font.



## Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/6/2024
Site Location Name:	Ragin Cajun 12 Federal #003H	Report Run Date:	2/7/2024 1:26 AM
Client Contact Name:	Shawn McCormick	API #:	
Client Contact Phone #:	575-513-9171		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

### Summary of Times

Arrived at Site 2/6/2024 9:35 AM

Departed Site 2/6/2024 3:50 PM

### Field Notes

**13:40** Arrived on site at approximately 9:35. On site to collect/field test vertical delineation samples at BH23-16; BH23-19; and BH23-21.

Filled out JSA

Waiting for dig crew to arrive

**11:22** Dig crew arrived at approximately 9:50. We went over the safety, signed paperwork and discussed plan of action

I located the sampling points with GPS and marked the points with flags

The dig crew unloaded their equipment and began to dig BH23-16 to 5' depth; had an issue with excavator bucket at 4'; took a break to fix bucket at approximately 11:10.



## Daily Site Visit Report

**18:19** Continued sampling BH23-16 at 6' and 7' depths. 7' passed field testing criteria for TPH and Chlorides. BH23-16 6' and 7' depths will be sent to lab for analysis.

Continued sampling BH24-21 at 7', 8', 9' and 10' depths. 10' passed field tests criteria for TPH and Chlorides. BH23-21 6', BH23-21 8' and BH23-21 10' will be sent to lab for analysis.

Dig crew backfilled the two sample sites.

### Next Steps & Recommendations

- 1 Speak with PM about scheduling a day to sample BH23-19 at 5' depth.

Send 5 sample to lab for analysis

## Daily Site Visit Report



## Site Photos

Viewing Direction: South



BH23-16 at 5' depth

Viewing Direction: West







BH23-16 at 5' depth. I had crew start to dig  
BH23-21 as I field tested sample BH23-16 5'

BH23-16 5' tested above spec for chlorides







## Daily Site Visit Report

<p><b>Viewing Direction: South</b></p>  <p><small>Description Photo - 3 Viewing Direction: South Depth: BH23-21 6' AA depth Created: 8/26/2024 12:16:30 PM Lat: 32.050074, Long: -103.528505</small></p>	<p><b>Viewing Direction: South</b></p>  <p><small>Description Photo - 4 Viewing Direction: South Depth: BH23-21 7' AA depth Created: 8/26/2024 1:08:23 PM Lat: 32.050074, Long: -103.528505</small></p>
<p>Bh23-21 6' depth;</p> <p>Field tested above spec for chlorides</p>	<p>Bh23-21 7' depth;</p> <p>Field tested above spec for chlorides</p>
<p><b>Viewing Direction: East</b></p>  <p><small>Description Photo - 5 Viewing Direction: East Depth: BH23-16 6' AA depth Created: 8/26/2024 1:17:35 PM Lat: 32.050074, Long: -103.528505</small></p>	<p><b>Viewing Direction: South</b></p>  <p><small>Description Photo - 6 Viewing Direction: South Depth: BH23-21 8' AA depth Created: 8/26/2024 1:18:23 PM Lat: 32.050074, Long: -103.528505</small></p>
<p>BH23-16 6' depth;</p> <p>Field tested above spec for chlorides</p>	<p>BH23-21 8' depth;</p> <p>Field tested above spec for chlorides</p>



## Daily Site Visit Report

Viewing Direction: South	Viewing Direction: East
	
BH23-21 8' depth; Field tested above spec for chlorides	BH23-16 7' depth Passed field testing criteria
Viewing Direction: South	Viewing Direction: South
	
BH23-21 9' depth; Field tested above spec for chlorides	BH23-21 10' depth; Passed field testing criteria



## Daily Site Visit Report

Viewing Direction: Northeast



BH23-16 7' depth

Viewing Direction: Southeast



BH23-21 10' depth.

Viewing Direction: North



BH23-16: sample site has been backfilled

Viewing Direction: South



BH23-21: sample site has been backfilled

## Daily Site Visit Report



Daily Site Visit Signature

**Inspector:** Andrew Ludvik

**Signature:**

  
Signature



## Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/25/2024
Site Location Name:	Ragin Cajun 12 Fed 002h	Report Run Date:	7/29/2024 4:11 PM
Client Contact Name:	Dale Woodall	API #:	30-025-42256
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

### Summary of Times

Arrived at Site	7/25/2024 10:20 AM
Departed Site	7/25/2024 12:00 PM

### Field Notes

**11:56** Finishe excavation areas on site

**11:56** Field screen samples to make sure they meet criteria

### Next Steps & Recommendations

1 Submit confirmation sample event

# Daily Site Visit Report



## Site Photos

Viewing Direction: North



Areas BH23-15,16,19 and 20 @ 2'

Viewing Direction: North



Area BH23-7 @ 3'

## Daily Site Visit Report



Daily Site Visit Signature

Inspector: Riley Plogger

Signature:

A handwritten signature in black ink, appearing to be 'Riley Plogger', written over a horizontal line.

Signature



## Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	8/6/2024
Site Location Name:	Ragin Cajun 12 Fed 002h	Report Run Date:	8/7/2024 1:30 PM
Client Contact Name:	Dale Woodall	API #:	30-025-42256
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

### Summary of Times

Arrived at Site	8/6/2024 9:30 AM
Departed Site	8/6/2024 1:45 PM

### Field Notes

- 13:31** Confirmation sampling event
- 13:33** Grab 5 point composite samples on BH24-07 and 15,16,19 and 20 excavation areas
- 13:33** Collect and field screen 14 samples total

### Next Steps & Recommendations

- 1 Send samples off to lab for analysis



# Daily Site Visit Report

## Site Photos

**Viewing Direction: Northeast**



Excavation area where samples BS24-02 to 10 and WS24-02-04 will be collected

**Viewing Direction: Southeast**



Excavation area where samples BS24-02 to 10 and WS24-02-04 will be collected

**Viewing Direction: North**



Excavation area where samples BS24-02 to 10 and WS24-02-04 will be collected

**Viewing Direction: West**



Excavation area where confirmation samples BS24-01 and WS24-01 were collected



## Daily Site Visit Report

Viewing Direction: North



Excavation area where confirmation samples BS24-01 and WS24-01 were collected

## Daily Site Visit Report



Daily Site Visit Signature

Inspector: Riley Plogger

Signature:

A handwritten signature in black ink, consisting of several overlapping loops and strokes, positioned above a horizontal line. The word 'Signature' is printed in small text below the line.

## **APPENDIX D – Notifications**

**From:** [Dhugal Hanton](#)  
**To:** [Enviro\\_OCD\\_EMNRD](#); [CFO\\_Spill\\_BLM\\_NM](#); [Amos, James A](#); [Kelsey](#)  
**Cc:** [tom.bynum@dvn.com](#); [Lupe.Carrasco@dvn.com](#); [amanda.davis@dvn.com](#); [wesley.mathews@dvn.com](#)  
**Subject:** [EXT] NOY1809932713: Ragin Cajun 12 Fed 2H - 48-hr Notification of Confirmatory Sampling  
**Date:** Tuesday, November 3, 2020 12:14:48 PM

---

All,

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled confirmatory sampling to be conducted at Ragin Cajun 12 Fed 2H for the illegal dump that occurred on March 24, 2018. Incident tracking #: NOY1809932713/1RP-5016.

This work will be conducted on behalf of Devon Energy Production Company.

On Thursday, November 5, 2020 at approximately 12 p.m., Monica Peppin of Vertex will be onsite to conduct confirmatory sampling. She can be reached at 575-361-9880. If you need directions to the site, please do not hesitate to contact her. If you have any questions or concerns regarding this notification, please give me a call at 505-506-0040.

Thank you,  
Natalie

**Natalie Gordon**  
Project Manager

Vertex Resource Group Ltd.  
213 S. Mesa Street  
Carlsbad, NM 88220

**P 575.725.5001 ext 709**  
**C 505.506.0040**  
**F**

[www.vertex.ca](http://www.vertex.ca)

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**From:** [Dhugal Hanton](#)  
**To:** [Enviro, OCD, EMNRD](#); [CFO, Spill, BLM, NM](#); [Amos, James A](#); [Kelsey](#)  
**Cc:** [Lupe.Carrasco@dvn.com](#); [amanda.davis@dvn.com](#); [wesley.mathews@dvn.com](#); [tom.bynum@dvn.com](#)  
**Subject:** [EXT] NOY1809932713: Ragin Cajun 12 Fed 2H  
**Date:** Tuesday, December 22, 2020 1:46:53 PM

---

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled additional confirmatory sampling to be conducted at Ragin Cajun 12 Fed 2H for the release that occurred on March 24, 2018, incident tracking # NOY1809932713.

This work will be completed on behalf of Devon Energy Production Company.

On Thursday, December 24, 2020 at approximately 11:00 a.m., John Ramirez of Vertex will be onsite to conduct additional confirmatory sampling. He can be reached at 575-725-1809. If you need directions to the site, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 505-506-0040.

Thank you,  
Natalie

**Natalie Gordon**  
Project Manager

Vertex Resource Group Ltd.  
213 S. Mesa Street  
Carlsbad, NM 88220

P 575.725.5001 ext 709  
C 505.506.0040  
F

[www.vertex.ca](http://www.vertex.ca)

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**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

QUESTIONS

Action 362113

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 362113
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

QUESTIONS

Prerequisites	
Incident ID (n#)	nOY1809932713
Incident Name	NOY1809932713 RAGIN CAJUN 12 FEDERAL #002H @ 30-025-42256
Incident Type	Produced Water Release
Incident Status	Initial C-141 Approved
Incident Well	[30-025-42256] RAGIN CAJUN 12 FEDERAL #002H

Location of Release Source	
Site Name	RAGIN CAJUN 12 FEDERAL #002H
Date Release Discovered	03/24/2018
Surface Owner	Federal

Sampling Event General Information	
Please answer all the questions in this group.	
What is the sampling surface area in square feet	3,326
What is the estimated number of samples that will be gathered	28
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	07/16/2024
Time sampling will commence	10:00 AM
Please provide any information necessary for observers to contact samplers	Chad Hensley Senior Project Manager Cell: 575-200-6167 Vertex Resources Services Inc. 3101 Boyd Drive Carlsbad, NM 88220
Please provide any information necessary for navigation to sampling site	From Carlsbad East on US-180 for 2.2 mi Turn right on refinery road 12.5 mi Turn left on NM-31 2.4 mi Turn right on NM-128 22.8 mi Turn right on J-1 / Orla Road 6.3 mi Turn Left on Monsanto Ln 1.3 mi Turn right 2.8 mi Turn right 0.8 mi Turn Right 0.4 mi

**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 362113

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 362113
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

CONDITIONS

Created By	Condition	Condition Date
wdale	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.	7/9/2024

**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

Action 367661

**QUESTIONS**

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 367661
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

**QUESTIONS**

Prerequisites	
Incident ID (n#)	nOY1809932713
Incident Name	NOY1809932713 RAGIN CAJUN 12 FEDERAL #002H @ 30-025-42256
Incident Type	Produced Water Release
Incident Status	Initial C-141 Approved
Incident Well	[30-025-42256] RAGIN CAJUN 12 FEDERAL #002H

**Location of Release Source**

Site Name	RAGIN CAJUN 12 FEDERAL #002H
Date Release Discovered	03/24/2018
Surface Owner	Federal

**Sampling Event General Information***Please answer all the questions in this group.*

What is the sampling surface area in square feet	2,100
What is the estimated number of samples that will be gathered	11
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	08/06/2024
Time sampling will commence	10:00 AM
Please provide any information necessary for observers to contact samplers	Please provide any information necessary for observers to contact samplers Riley Plogger Cell phone : 575-361-9639
Please provide any information necessary for navigation to sampling site	Coordinates: 32.05060, -103.42851 FROM INTER OF HWY-128 AND BATTLE AXE RD GO S ON BATTLE AX 12.2 MI GO L ON ACCESS RD HEADING S .66 MI GO L ON LEASED RD/ANTHONY RD HEADING E 7.81 MI GO R ON LEASED RD HEADING S/SW 1.25 MI GO R ON LEASE RD HEADING W 1.44 MI TO OIL WELL PAD

**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 367661

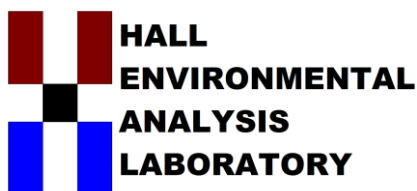
CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 367661
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

CONDITIONS

Created By	Condition	Condition Date
wdale	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.	7/26/2024

## **APPENDIX E – Laboratory Data Reports and Chain of Custody Forms**



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

June 19, 2023

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: Ragin Cajun 12 Fed 3

OrderNo.: 2306397

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 16 sample(s) on 6/8/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-01 0'

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 11:10:00 AM

Lab ID: 2306397-001

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/13/2023 5:51:28 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/13/2023 5:51:28 AM
Surr: DNOP	70.6	69-147		%Rec	1	6/13/2023 5:51:28 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/10/2023 4:52:40 AM
Surr: BFB	99.2	15-244		%Rec	1	6/10/2023 4:52:40 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	6/10/2023 4:52:40 AM
Toluene	ND	0.047		mg/Kg	1	6/10/2023 4:52:40 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/10/2023 4:52:40 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/10/2023 4:52:40 AM
Surr: 4-Bromofluorobenzene	93.4	39.1-146		%Rec	1	6/10/2023 4:52:40 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 7:12:25 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

CLIENT: Devon Energy Client Sample ID: BH23-01 2 '  
Project: Ragin Cajun 12 Fed 3 Collection Date: 6/6/2023 11:22:00 AM  
Lab ID: 2306397-002 Matrix: SOIL Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	10	9.6		mg/Kg	1	6/12/2023 1:36:52 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/12/2023 1:36:52 PM
Surr: DNOP	89.3	69-147		%Rec	1	6/12/2023 1:36:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/10/2023 5:16:01 AM
Surr: BFB	98.2	15-244		%Rec	1	6/10/2023 5:16:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	6/10/2023 5:16:01 AM
Toluene	ND	0.048		mg/Kg	1	6/10/2023 5:16:01 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/10/2023 5:16:01 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/10/2023 5:16:01 AM
Surr: 4-Bromofluorobenzene	92.5	39.1-146		%Rec	1	6/10/2023 5:16:01 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	6/14/2023 7:24:50 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-02 0 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 11:13:00 AM

Lab ID: 2306397-003

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/13/2023 9:00:45 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/13/2023 9:00:45 AM
Surr: DNOP	70.4	69-147		%Rec	1	6/13/2023 9:00:45 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/10/2023 5:39:27 AM
Surr: BFB	96.9	15-244		%Rec	1	6/10/2023 5:39:27 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	6/10/2023 5:39:27 AM
Toluene	ND	0.047		mg/Kg	1	6/10/2023 5:39:27 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/10/2023 5:39:27 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/10/2023 5:39:27 AM
Surr: 4-Bromofluorobenzene	91.0	39.1-146		%Rec	1	6/10/2023 5:39:27 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 8:02:03 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-02 2 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 11:24:00 AM

Lab ID: 2306397-004

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/12/2023 2:24:23 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/12/2023 2:24:23 PM
Surr: DNOP	88.7	69-147		%Rec	1	6/12/2023 2:24:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/10/2023 6:03:01 AM
Surr: BFB	97.3	15-244		%Rec	1	6/10/2023 6:03:01 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	6/10/2023 6:03:01 AM
Toluene	ND	0.049		mg/Kg	1	6/10/2023 6:03:01 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/10/2023 6:03:01 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/10/2023 6:03:01 AM
Surr: 4-Bromofluorobenzene	91.6	39.1-146		%Rec	1	6/10/2023 6:03:01 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 8:14:27 PM

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

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

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-03 0 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 11:30:00 AM

Lab ID: 2306397-005

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/9/2023 10:14:54 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/9/2023 10:14:54 PM
Surr: DNOP	88.4	69-147		%Rec	1	6/9/2023 10:14:54 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/12/2023 6:53:00 PM
Surr: BFB	102	15-244		%Rec	1	6/12/2023 6:53:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	6/12/2023 6:53:00 PM
Toluene	ND	0.048		mg/Kg	1	6/12/2023 6:53:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/12/2023 6:53:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/12/2023 6:53:00 PM
Surr: 4-Bromofluorobenzene	95.1	39.1-146		%Rec	1	6/12/2023 6:53:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 8:26:52 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-03 2 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 11:45:00 AM

Lab ID: 2306397-006

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/9/2023 10:25:56 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/9/2023 10:25:56 PM
Surr: DNOP	91.0	69-147		%Rec	1	6/9/2023 10:25:56 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/12/2023 7:58:00 PM
Surr: BFB	99.5	15-244		%Rec	1	6/12/2023 7:58:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	6/12/2023 7:58:00 PM
Toluene	ND	0.049		mg/Kg	1	6/12/2023 7:58:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/12/2023 7:58:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/12/2023 7:58:00 PM
Surr: 4-Bromofluorobenzene	94.5	39.1-146		%Rec	1	6/12/2023 7:58:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 8:39:16 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 6 of 22

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

CLIENT: Devon Energy Client Sample ID: BH23-04 0 '  
Project: Ragin Cajun 12 Fed 3 Collection Date: 6/6/2023 11:31:00 AM  
Lab ID: 2306397-007 Matrix: SOIL Received Date: 6/8/2023 7:35:00 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	6/9/2023 10:36:55 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/9/2023 10:36:55 PM
Surr: DNOP	96.8	69-147		%Rec	1	6/9/2023 10:36:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/12/2023 9:25:00 PM
Surr: BFB	98.7	15-244		%Rec	1	6/12/2023 9:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	6/12/2023 9:25:00 PM
Toluene	ND	0.047		mg/Kg	1	6/12/2023 9:25:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/12/2023 9:25:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	6/12/2023 9:25:00 PM
Surr: 4-Bromofluorobenzene	92.0	39.1-146		%Rec	1	6/12/2023 9:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	6/14/2023 8:51:40 PM

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

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

## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-04 2 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 11:50:00 AM

Lab ID: 2306397-008

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/9/2023 10:47:57 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/9/2023 10:47:57 PM
Surr: DNOP	85.9	69-147		%Rec	1	6/9/2023 10:47:57 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/12/2023 9:47:00 PM
Surr: BFB	90.9	15-244		%Rec	1	6/12/2023 9:47:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	6/12/2023 9:47:00 PM
Toluene	ND	0.048		mg/Kg	1	6/12/2023 9:47:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/12/2023 9:47:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/12/2023 9:47:00 PM
Surr: 4-Bromofluorobenzene	89.3	39.1-146		%Rec	1	6/12/2023 9:47:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 9:04:05 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-05 0 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 2:02:00 PM

Lab ID: 2306397-009

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/9/2023 10:58:51 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/9/2023 10:58:51 PM
Surr: DNOP	82.7	69-147		%Rec	1	6/9/2023 10:58:51 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/12/2023 10:09:00 PM
Surr: BFB	96.8	15-244		%Rec	1	6/12/2023 10:09:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	6/12/2023 10:09:00 PM
Toluene	ND	0.049		mg/Kg	1	6/12/2023 10:09:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/12/2023 10:09:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/12/2023 10:09:00 PM
Surr: 4-Bromofluorobenzene	86.7	39.1-146		%Rec	1	6/12/2023 10:09:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 9:16:30 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

CLIENT: Devon Energy Client Sample ID: BH23-05 2 '  
Project: Ragin Cajun 12 Fed 3 Collection Date: 6/6/2023 2:21:00 PM  
Lab ID: 2306397-010 Matrix: SOIL Received Date: 6/8/2023 7:35:00 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	6/9/2023 11:09:48 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/9/2023 11:09:48 PM
Surr: DNOP	87.5	69-147		%Rec	1	6/9/2023 11:09:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/12/2023 10:30:00 PM
Surr: BFB	94.0	15-244		%Rec	1	6/12/2023 10:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	6/12/2023 10:30:00 PM
Toluene	ND	0.048		mg/Kg	1	6/12/2023 10:30:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/12/2023 10:30:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/12/2023 10:30:00 PM
Surr: 4-Bromofluorobenzene	89.9	39.1-146		%Rec	1	6/12/2023 10:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	6/14/2023 9:28:55 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-06 0 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 2:06:00 PM

Lab ID: 2306397-011

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/9/2023 11:31:40 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/9/2023 11:31:40 PM
Surr: DNOP	85.7	69-147		%Rec	1	6/9/2023 11:31:40 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/12/2023 10:52:00 PM
Surr: BFB	95.0	15-244		%Rec	1	6/12/2023 10:52:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.025		mg/Kg	1	6/12/2023 10:52:00 PM
Toluene	ND	0.049		mg/Kg	1	6/12/2023 10:52:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/12/2023 10:52:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/12/2023 10:52:00 PM
Surr: 4-Bromofluorobenzene	91.6	39.1-146		%Rec	1	6/12/2023 10:52:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	ND	61		mg/Kg	20	6/14/2023 5:12:15 PM

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

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

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-06 2 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 2:24:00 PM

Lab ID: 2306397-012

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/9/2023 11:42:34 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/9/2023 11:42:34 PM
Surr: DNOP	90.3	69-147		%Rec	1	6/9/2023 11:42:34 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/12/2023 11:35:00 PM
Surr: BFB	97.6	15-244		%Rec	1	6/12/2023 11:35:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.025		mg/Kg	1	6/12/2023 11:35:00 PM
Toluene	ND	0.049		mg/Kg	1	6/12/2023 11:35:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/12/2023 11:35:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/12/2023 11:35:00 PM
Surr: 4-Bromofluorobenzene	91.5	39.1-146		%Rec	1	6/12/2023 11:35:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 5:49:17 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-07 0 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 2:25:00 PM

Lab ID: 2306397-013

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	2700	97		mg/Kg	10	6/9/2023 11:53:28 PM
Motor Oil Range Organics (MRO)	ND	490	D	mg/Kg	10	6/9/2023 11:53:28 PM
Surr: DNOP	0	69-147	S	%Rec	10	6/9/2023 11:53:28 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/13/2023 10:05:00 PM
Surr: BFB	92.8	15-244		%Rec	1	6/13/2023 10:05:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.023		mg/Kg	1	6/13/2023 10:05:00 PM
Toluene	ND	0.047		mg/Kg	1	6/13/2023 10:05:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/13/2023 10:05:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	6/13/2023 10:05:00 PM
Surr: 4-Bromofluorobenzene	86.8	39.1-146		%Rec	1	6/13/2023 10:05:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	290	60		mg/Kg	20	6/14/2023 6:01:38 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-07 2 '

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 2:54:00 PM

Lab ID: 2306397-014

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	1900	92		mg/Kg	10	6/13/2023 9:48:11 AM
Motor Oil Range Organics (MRO)	ND	460	D	mg/Kg	10	6/13/2023 9:48:11 AM
Surr: DNOP	0	69-147	S	%Rec	10	6/13/2023 9:48:11 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	6/13/2023 10:27:00 PM
Surr: BFB	104	15-244		%Rec	5	6/13/2023 10:27:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.12		mg/Kg	5	6/13/2023 10:27:00 PM
Toluene	ND	0.25		mg/Kg	5	6/13/2023 10:27:00 PM
Ethylbenzene	ND	0.25		mg/Kg	5	6/13/2023 10:27:00 PM
Xylenes, Total	ND	0.50		mg/Kg	5	6/13/2023 10:27:00 PM
Surr: 4-Bromofluorobenzene	92.2	39.1-146		%Rec	5	6/13/2023 10:27:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	76	61		mg/Kg	20	6/14/2023 6:14:00 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-08 0'

Project: Ragin Cajun 12 Fed 3

Collection Date: 6/6/2023 2:26:00 PM

Lab ID: 2306397-015

Matrix: SOIL

Received Date: 6/8/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/10/2023 12:15:17 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/10/2023 12:15:17 AM
Surr: DNOP	91.8	69-147		%Rec	1	6/10/2023 12:15:17 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>KMN</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/13/2023 10:48:00 PM
Surr: BFB	92.4	15-244		%Rec	1	6/13/2023 10:48:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>KMN</b>
Benzene	ND	0.024		mg/Kg	1	6/13/2023 10:48:00 PM
Toluene	ND	0.048		mg/Kg	1	6/13/2023 10:48:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/13/2023 10:48:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/13/2023 10:48:00 PM
Surr: 4-Bromofluorobenzene	89.8	39.1-146		%Rec	1	6/13/2023 10:48:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	ND	60		mg/Kg	20	6/14/2023 6:26:21 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2306397

Date Reported: 6/19/2023

CLIENT: Devon Energy Client Sample ID: BH23-08 2 '  
Project: Ragin Cajun 12 Fed 3 Collection Date: 6/6/2023 2:44:00 PM  
Lab ID: 2306397-016 Matrix: SOIL Received Date: 6/8/2023 7:35:00 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	6/10/2023 12:26:17 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/10/2023 12:26:17 AM
Surr: DNOP	85.6	69-147		%Rec	1	6/10/2023 12:26:17 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/13/2023 11:10:00 PM
Surr: BFB	98.8	15-244		%Rec	1	6/13/2023 11:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	6/13/2023 11:10:00 PM
Toluene	ND	0.047		mg/Kg	1	6/13/2023 11:10:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/13/2023 11:10:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	6/13/2023 11:10:00 PM
Surr: 4-Bromofluorobenzene	90.7	39.1-146		%Rec	1	6/13/2023 11:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	6/14/2023 6:38:41 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 Quantitative 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#: 2306397

19-Jun-23

Client: Devon Energy

Project: Ragin Cajun 12 Fed 3

Sample ID: MB-75580	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 75580	RunNo: 97472								
Prep Date: 6/14/2023	Analysis Date: 6/14/2023	SeqNo: 3541330	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-75580	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 75580	RunNo: 97472								
Prep Date: 6/14/2023	Analysis Date: 6/14/2023	SeqNo: 3541331	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Sample ID: MB-75594	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 75594	RunNo: 97431								
Prep Date: 6/14/2023	Analysis Date: 6/14/2023	SeqNo: 3541454	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-75594	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 75594	RunNo: 97431								
Prep Date: 6/14/2023	Analysis Date: 6/14/2023	SeqNo: 3541455	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	90	110			

Qualifiers:

\*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

% Recovery outside of 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#: 2306397

19-Jun-23

Client: Devon Energy

Project: Ragin Cajun 12 Fed 3

Sample ID: <b>LCS-75472</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75472</b>		RunNo: <b>97343</b>							
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/9/2023</b>		SeqNo: <b>3536610</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	79.3	61.9	130			
Surr: DNOP	5.2		5.000		103	69	147			

Sample ID: <b>LCS-75498</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>75498</b>		RunNo: <b>97343</b>							
Prep Date: <b>6/9/2023</b>	Analysis Date: <b>6/9/2023</b>		SeqNo: <b>3536614</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	35	10	50.00	0	70.8	61.9	130			
Surr: DNOP	5.0		5.000		99.4	69	147			

Sample ID: <b>MB-75472</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75472</b>		RunNo: <b>97343</b>							
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/9/2023</b>		SeqNo: <b>3536615</b>		Units: <b>mg/Kg</b>					
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	12		10.00		119	69	147			

Sample ID: <b>MB-75498</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>75498</b>		RunNo: <b>97343</b>							
Prep Date: <b>6/9/2023</b>	Analysis Date: <b>6/9/2023</b>		SeqNo: <b>3536619</b>		Units: <b>mg/Kg</b>					
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		97.3	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 Quantitative 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

Page 18 of 22

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2306397

19-Jun-23

Client: Devon Energy

Project: Ragin Cajun 12 Fed 3

Sample ID: <b>lcs-75463</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75463</b>			RunNo: <b>97323</b>						
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/9/2023</b>			SeqNo: <b>3537033</b>			Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.8	70	130			
Surr: BFB	2100		1000		206	15	244			

Sample ID: <b>mb-75463</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75463</b>			RunNo: <b>97323</b>						
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/9/2023</b>			SeqNo: <b>3537035</b>			Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	15	244			

Sample ID: <b>lcs-75478</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>75478</b>			RunNo: <b>97367</b>						
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/12/2023</b>			SeqNo: <b>3538457</b>			Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.4	70	130			
Surr: BFB	2200		1000		220	15	244			

Sample ID: <b>mb-75478</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>75478</b>			RunNo: <b>97367</b>						
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/12/2023</b>			SeqNo: <b>3538458</b>			Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		105	15	244			

Sample ID: <b>2306397-005ams</b>	SampType: <b>MS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>BH23-03 0 '</b>	Batch ID: <b>75478</b>			RunNo: <b>97367</b>						
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/12/2023</b>			SeqNo: <b>3538463</b>			Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	24.11	0	96.0	70	130			
Surr: BFB	2100		964.3		221	15	244			

Sample ID: <b>2306397-005amsd</b>	SampType: <b>MSD</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>BH23-03 0 '</b>	Batch ID: <b>75478</b>			RunNo: <b>97367</b>						
Prep Date: <b>6/8/2023</b>	Analysis Date: <b>6/12/2023</b>			SeqNo: <b>3538464</b>			Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	24.11	0	96.0	70	130			
Surr: BFB	2100		964.3		221	15	244			

### 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 Quantitative 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#: 2306397

19-Jun-23

Client: Devon Energy

Project: Ragin Cajun 12 Fed 3

Sample ID: 2306397-005amsd		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH23-03 0 '		Batch ID: 75478		RunNo: 97367						
Prep Date: 6/8/2023		Analysis Date: 6/12/2023		SeqNo: 3538464		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	24.04	0	91.1	70	130	5.51	20	
Surr: BFB	2100		961.5		218	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 Quantitative 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#: 2306397

19-Jun-23

Client: Devon Energy

Project: Ragin Cajun 12 Fed 3

Sample ID: LCS-75463	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 75463	RunNo: 97323								
Prep Date: 6/8/2023	Analysis Date: 6/9/2023	SeqNo: 3537095	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.7	70	130			
Toluene	0.89	0.050	1.000	0	89.4	70	130			
Ethylbenzene	0.89	0.050	1.000	0	88.7	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.0	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.8	39.1	146			

Sample ID: mb-75463	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 75463	RunNo: 97323								
Prep Date: 6/8/2023	Analysis Date: 6/9/2023	SeqNo: 3537097	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	0.97		1.000		96.7	39.1	146			

Sample ID: lcs-75478	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 75478	RunNo: 97367								
Prep Date: 6/8/2023	Analysis Date: 6/12/2023	SeqNo: 3538472	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	91.9	70	130			
Toluene	0.93	0.050	1.000	0	92.9	70	130			
Ethylbenzene	0.92	0.050	1.000	0	92.4	70	130			
Xylenes, Total	2.8	0.10	3.000	0	92.3	70	130			
Surr: 4-Bromofluorobenzene	0.98		1.000		98.3	39.1	146			

Sample ID: mb-75478	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 75478	RunNo: 97367								
Prep Date: 6/8/2023	Analysis Date: 6/12/2023	SeqNo: 3538473	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	0.97		1.000		97.5	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 Quantitative 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

Page 21 of 22

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2306397

19-Jun-23

Client: Devon Energy

Project: Ragin Cajun 12 Fed 3

Sample ID: 2306397-006ams		SampType: MS		TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-03 2 '		Batch ID: 75478		RunNo: 97367						
Prep Date: 6/8/2023		Analysis Date: 6/12/2023		SeqNo: 3538479		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9756	0	90.5	70	130			
Toluene	0.89	0.049	0.9756	0	91.3	70	130			
Ethylbenzene	0.89	0.049	0.9756	0	91.2	70	130			
Xylenes, Total	2.7	0.098	2.927	0	90.9	70	130			
Surr: 4-Bromofluorobenzene	0.94		0.9756		95.9	39.1	146			

Sample ID: 2306397-006amsd		SampType: MSD		TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-03 2 '		Batch ID: 75478		RunNo: 97367						
Prep Date: 6/8/2023		Analysis Date: 6/12/2023		SeqNo: 3538480		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.024	0.9699	0	89.0	70	130	2.26	20	
Toluene	0.88	0.048	0.9699	0	90.4	70	130	1.59	20	
Ethylbenzene	0.88	0.048	0.9699	0	90.3	70	130	1.59	20	
Xylenes, Total	2.6	0.097	2.910	0	90.2	70	130	1.28	20	
Surr: 4-Bromofluorobenzene	0.92		0.9699		94.4	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 Quantitative Limit

S

% Recovery outside of standard limits. If undiluted results may be estimated.

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit



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

## Sample Log-In Check List

Client Name: Devon Energy

Work Order Number: 2306397

RcptNo: 1

Received By: Tracy Casarrubias 6/8/2023 7:35:00 AM

Completed By: Tracy Casarrubias 6/8/2023 8:38:23 AM

Reviewed By: *6/8/23*

### Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☒ Not Present ☐

2. How was the sample delivered? Courier

### Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐

4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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? Yes ☒ No ☐

(Note discrepancies on chain of custody)

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? Yes ☒ No ☐

(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted?

Checked by:

*SCM  
06/08/23*

### Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

Mailing address, phone number, and Email are missing on COC- TMC 6/8/23

16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes	yogi		

## Chain-of-Custody Record

Client: Devon / VertexMailing 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:

Ragin Cajun 12 Fed 3

Project #:

23E-02965

Project Manager:

Kent StallingsSampler: SMOn Ice: ☒ Yes ☐ No Yes# of Coolers: 1Cooler Temp (including CF): 33-33.3 (°C)

Container Type and #

Preservative Type

HEAL No.

Date

Time

Matrix

Sample Name

Date

Time

Matrix

Sample Name

Date

Time

Matrix

Sample Name

Date

Time

Matrix

Sample Name

Date

Time

Matrix

Sample Name

Date

Time

Matrix

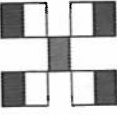
Sample Name

Date

Time

Matrix

Sample Name

HALL ENVIRONMENTAL  
ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

TPH: 8015D (GRO / DRO / MRO)

8081 Pesticides/8082 PCB's

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

Cd, F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

STX / 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

Cd, F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

STX / 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

Cd, F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

STX / 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

Cd, F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

Remarks: Direct bill to: Devon w/p #21160440Received by: Devon Date: 4/13/23 Time: 1000Received by: Devon Date: 4/13/23 Time: 7:35Received by: Devon Date: 4/13/23 Time: 7:35Received by: Devon Date: 4/13/23 Time: 7:35Received by: Devon Date: 4/13/23 Time: 7:35Received by: Devon Date: 4/13/23 Time: 7:35Received by: Devon Date: 4/13/23 Time: 7:35

C.C. Stallings@vertex.co

Pg. 1 of 2

## Chain-of-Custody Record

Client: Dewon/VertexMailing Address: On filePhone #:                       
email or Fax#:                     QA/QC Package:                       
☐ Standard ☐ Level 4 (Full Validation)Accreditation: ☐ Az Compliance  
☐ NELAC ☐ Other                     ☐ EDD (Type)                     Turn-Around Time:                     ☒ Standard ☒ Rush 5 DayProject Name:                     Project#: Ragin Cajun 12 Fed 3Project#: 23E-02965Project Manager:                     Project Manager: Kent StallingsSampler: SMOn Ice: ☒ Yes ☐ No yes# of Coolers: 1Cooler Temp (including CF): 3.3-6.3.3 (°C)

Container Type and #

Preservative Type

HEAL No.

402 jar

ICE

013

014

015

016

017

018

019

020

021

022

023

024

025

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030

031

032

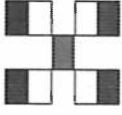
033

034

035

036

037

Received by:                     Via:                     Date: 8/13Time: 1000Received by:                     Via:                     Date: 8/13Time: 7:55Relinquished by:                     Relinquished by:                     Date: 8/13Time:                     Date: 8/13Time:                     Date: 8/13Time:                     HALL ENVIRONMENTAL  
ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

TPH:8015D(GRO / DRO / MRO)

8081 Pesticides/8082 PCBs

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

BTEX / MTBE / TMBs (8021)

TPH:8015D(GRO / DRO / MRO)

8081 Pesticides/8082 PCBs

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

BTEX / MTBE / TMBs (8021)

TPH:8015D(GRO / DRO / MRO)

8081 Pesticides/8082 PCBs

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

BTEX / MTBE / TMBs (8021)

TPH:8015D(GRO / DRO / MRO)

8081 Pesticides/8082 PCBs

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

Remarks:

Direct bill to: Devon W01#: 21160440

C.C. Stallings@vertex.ca pg 2 of 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.

Released to Imaging: 8/29/2024 2:58:23 PM



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](http://www.hallenvironmental.com)

December 28, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Ragin Cajun 12 Fed 3H

OrderNo.: 2312529

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 2 sample(s) on 12/8/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312529  
Date Reported: 12/28/2023

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-10  
Project: Ragin Cajun 12 Fed 3H      Collection Date: 12/6/2023 9:20:00 AM  
Lab ID: 2312529-001      Matrix: SOIL      Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/15/2023 12:15:15 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/15/2023 12:15:15 PM
Surr: DNOP	74.4	69-147		%Rec	1	12/15/2023 12:15:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2023 3:21:00 PM
Surr: BFB	101	15-244		%Rec	1	12/15/2023 3:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/15/2023 3:21:00 PM
Toluene	ND	0.047		mg/Kg	1	12/15/2023 3:21:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2023 3:21:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/15/2023 3:21:00 PM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	12/15/2023 3:21:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	12/15/2023 6:54:43 PM

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

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

## Analytical Report

Lab Order 2312529

Date Reported: 12/28/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-10

Project: Ragin Cajun 12 Fed 3H

Collection Date: 12/6/2023 9:30:00 AM

Lab ID: 2312529-002

Matrix: SOIL

Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/15/2023 12:39:42 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/15/2023 12:39:42 PM
Surr: DNOP	74.3	69-147		%Rec	1	12/15/2023 12:39:42 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>CCM</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/15/2023 3:43:00 PM
Surr: BFB	100	15-244		%Rec	1	12/15/2023 3:43:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>CCM</b>
Benzene	ND	0.024		mg/Kg	1	12/15/2023 3:43:00 PM
Toluene	ND	0.048		mg/Kg	1	12/15/2023 3:43:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/15/2023 3:43:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/15/2023 3:43:00 PM
Surr: 4-Bromofluorobenzene	98.4	39.1-146		%Rec	1	12/15/2023 3:43:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	ND	60		mg/Kg	20	12/15/2023 7:09:53 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312529

28-Dec-23

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 3H

Sample ID: MB-79418	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 79418	RunNo: 101893
Prep Date: 12/15/2023	Analysis Date: 12/15/2023	SeqNo: 3757679 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-79418	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 79418	RunNo: 101893
Prep Date: 12/15/2023	Analysis Date: 12/15/2023	SeqNo: 3757680 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	15	1.5 15.00 0 96.8 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 Quantitative 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

Page 3 of 6

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312529

28-Dec-23

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Fed 3H

Sample ID: LCS-79405	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 79405		RunNo: 101872							
Prep Date: 12/15/2023	Analysis Date: 12/15/2023		SeqNo: 3756381		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.9	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: MB-79405	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 79405		RunNo: 101872							
Prep Date: 12/15/2023	Analysis Date: 12/15/2023		SeqNo: 3756384		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	12		10.00		119	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 Quantitative 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#: 2312529

28-Dec-23

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Fed 3H

Sample ID: <b>lcs-79361</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79361</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/13/2023</b>	Analysis Date: <b>12/15/2023</b>		SeqNo: <b>3757528</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.5	70	130			
Surr: BFB	2100		1000		211	15	244			

Sample ID: <b>mb-79361</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79361</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/13/2023</b>	Analysis Date: <b>12/15/2023</b>		SeqNo: <b>3757529</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.1	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 Quantitative 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#: 2312529

28-Dec-23

**Client:** Vertex Resources Services, Inc.**Project:** Ragin Cajun 12 Fed 3H

Sample ID: <b>lcs-79361</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79361</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/13/2023</b>	Analysis Date: <b>12/15/2023</b>		SeqNo: <b>3757581</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.0	70	130			
Toluene	0.94	0.050	1.000	0	94.4	70	130			
Ethylbenzene	0.96	0.050	1.000	0	96.5	70	130			
Xylenes, Total	2.9	0.10	3.000	0	97.1	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	39.1	146			

Sample ID: <b>mb-79361</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79361</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/13/2023</b>	Analysis Date: <b>12/15/2023</b>		SeqNo: <b>3757582</b>		Units: <b>mg/Kg</b>					
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		98.3	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 Quantitative 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

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## Sample Log-In Check List

Client Name: Vertex Resources

Work Order Number: 2312529

RcptNo: 1

Received By: Cheyenne Cason

12/8/2023 8:00:00 AM

*Chen*

Completed By: Cheyenne Cason

12/8/2023 10:09:05 AM

*Chen*

Reviewed By:

*12-8-23*Chain of Custody

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

Log In

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

# of preserved  
bottles checked  
for pH:

(&lt;2 or &gt;12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: *ju 12/8/23*Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: Mailing address and phone number are missing on COC- CMC 12/8/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Not Present	Morty		
2	1.2	Good	Not Present	Morty		





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](http://www.hallenvironmental.com)

January 08, 2024

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Ragin Cajun 12 Fed 003H

OrderNo.: 2312564

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 24 sample(s) on 12/9/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312564  
Date Reported: 1/8/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-07 4'  
Project: Ragin Cajun 12 Fed 003H      Collection Date: 12/7/2023 9:00:00 AM  
Lab ID: 2312564-001      Matrix: SOIL      Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 5:35:23 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 5:35:23 PM
Surr: DNOP	111	69-147		%Rec	1	12/16/2023 5:35:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2023 5:04:59 AM
Surr: BFB	94.1	15-244		%Rec	1	12/16/2023 5:04:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 5:04:59 AM
Toluene	ND	0.047		mg/Kg	1	12/16/2023 5:04:59 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2023 5:04:59 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/16/2023 5:04:59 AM
Surr: 4-Bromofluorobenzene	95.6	39.1-146		%Rec	1	12/16/2023 5:04:59 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 11:51:48 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-11 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 9:10:00 AM

Lab ID: 2312564-002

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/16/2023 5:45:56 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2023 5:45:56 PM
Surr: DNOP	105	69-147		%Rec	1	12/16/2023 5:45:56 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 5:28:58 AM
Surr: BFB	93.8	15-244		%Rec	1	12/16/2023 5:28:58 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 5:28:58 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 5:28:58 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 5:28:58 AM
Xylenes, Total	ND	0.092		mg/Kg	1	12/16/2023 5:28:58 AM
Surr: 4-Bromofluorobenzene	96.1	39.1-146		%Rec	1	12/16/2023 5:28:58 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 12:37:12 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-11 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 9:20:00 AM

Lab ID: 2312564-003

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 5:56:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 5:56:28 PM
Surr: DNOP	100	69-147		%Rec	1	12/16/2023 5:56:28 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 7:03:54 AM
Surr: BFB	95.7	15-244		%Rec	1	12/16/2023 7:03:54 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 7:03:54 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 7:03:54 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 7:03:54 AM
Xylenes, Total	ND	0.092		mg/Kg	1	12/16/2023 7:03:54 AM
Surr: 4-Bromofluorobenzene	97.9	39.1-146		%Rec	1	12/16/2023 7:03:54 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 12:52:17 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-12 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 9:30:00 AM

Lab ID: 2312564-004

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	12/16/2023 6:07:02 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/16/2023 6:07:02 PM
Surr: DNOP	108	69-147		%Rec	1	12/16/2023 6:07:02 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2023 7:27:28 AM
Surr: BFB	97.0	15-244		%Rec	1	12/16/2023 7:27:28 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	12/16/2023 7:27:28 AM
Toluene	ND	0.050		mg/Kg	1	12/16/2023 7:27:28 AM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2023 7:27:28 AM
Xylenes, Total	ND	0.10		mg/Kg	1	12/16/2023 7:27:28 AM
Surr: 4-Bromofluorobenzene	98.3	39.1-146		%Rec	1	12/16/2023 7:27:28 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 1:07:26 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312564  
Date Reported: 1/8/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-12 2'  
Project: Ragin Cajun 12 Fed 003H      Collection Date: 12/7/2023 9:40:00 AM  
Lab ID: 2312564-005      Matrix: SOIL      Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 6:17:34 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 6:17:34 PM
Surr: DNOP	100	69-147		%Rec	1	12/16/2023 6:17:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 7:50:53 AM
Surr: BFB	95.2	15-244		%Rec	1	12/16/2023 7:50:53 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 7:50:53 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 7:50:53 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 7:50:53 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 7:50:53 AM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	12/16/2023 7:50:53 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 1:52:53 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H  
Lab ID: 2312564-006

Client Sample ID: BH23-13 0'  
Collection Date: 12/7/2023 9:50:00 AM  
Received Date: 12/9/2023 7:50:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	12/16/2023 6:28:16 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	12/16/2023 6:28:16 PM
Surr: DNOP	108	69-147		%Rec	1	12/16/2023 6:28:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 8:14:46 AM
Surr: BFB	93.3	15-244		%Rec	1	12/16/2023 8:14:46 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 8:14:46 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 8:14:46 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 8:14:46 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2023 8:14:46 AM
Surr: 4-Bromofluorobenzene	96.3	39.1-146		%Rec	1	12/16/2023 8:14:46 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 2:08:03 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-13 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 10:00:00 AM

Lab ID: 2312564-007

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 6:38:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 6:38:56 PM
Surr: DNOP	99.9	69-147		%Rec	1	12/16/2023 6:38:56 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 8:38:47 AM
Surr: BFB	93.2	15-244		%Rec	1	12/16/2023 8:38:47 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 8:38:47 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 8:38:47 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 8:38:47 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 8:38:47 AM
Surr: 4-Bromofluorobenzene	95.8	39.1-146		%Rec	1	12/16/2023 8:38:47 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	59		mg/Kg	20	12/16/2023 2:23:12 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-14 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 10:10:00 AM

Lab ID: 2312564-008

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	790	9.5		mg/Kg	1	12/16/2023 6:49:36 PM
Motor Oil Range Organics (MRO)	630	47		mg/Kg	1	12/16/2023 6:49:36 PM
Surr: DNOP	111	69-147		%Rec	1	12/16/2023 6:49:36 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 9:02:49 AM
Surr: BFB	93.0	15-244		%Rec	1	12/16/2023 9:02:49 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/16/2023 9:02:49 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 9:02:49 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 9:02:49 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 9:02:49 AM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	12/16/2023 9:02:49 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	210	61		mg/Kg	20	12/16/2023 2:38:22 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-14 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 10:20:00 AM

Lab ID: 2312564-009

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/16/2023 7:29:36 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/16/2023 7:29:36 PM
Surr: DNOP	119	69-147		%Rec	1	12/16/2023 7:29:36 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 10:38:53 AM
Surr: BFB	95.5	15-244		%Rec	1	12/16/2023 10:38:53 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	12/16/2023 10:38:53 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 10:38:53 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 10:38:53 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2023 10:38:53 AM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	12/16/2023 10:38:53 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	150	60		mg/Kg	20	12/16/2023 2:53:32 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312564  
Date Reported: 1/8/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-15 0'  
Project: Ragin Cajun 12 Fed 003H      Collection Date: 12/7/2023 10:30:00 AM  
Lab ID: 2312564-010      Matrix: SOIL      Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	7100	95		mg/Kg	10	12/16/2023 7:40:14 PM
Motor Oil Range Organics (MRO)	4900	480		mg/Kg	10	12/16/2023 7:40:14 PM
Surr: DNOP	0	69-147	S	%Rec	10	12/16/2023 7:40:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 11:02:37 AM
Surr: BFB	93.9	15-244		%Rec	1	12/16/2023 11:02:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 11:02:37 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 11:02:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 11:02:37 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 11:02:37 AM
Surr: 4-Bromofluorobenzene	95.5	39.1-146		%Rec	1	12/16/2023 11:02:37 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	410	60		mg/Kg	20	12/16/2023 3:08:41 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-15 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 10:40:00 AM

Lab ID: 2312564-011

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/16/2023 7:50:51 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/16/2023 7:50:51 PM
Surr: DNOP	109	69-147		%Rec	1	12/16/2023 7:50:51 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 11:26:15 AM
Surr: BFB	96.8	15-244		%Rec	1	12/16/2023 11:26:15 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/16/2023 11:26:15 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 11:26:15 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 11:26:15 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 11:26:15 AM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	12/16/2023 11:26:15 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	ND	60		mg/Kg	20	12/16/2023 3:23:50 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-16 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 10:50:00 AM

Lab ID: 2312564-012

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	3100	92		mg/Kg	10	12/16/2023 8:01:26 PM
Motor Oil Range Organics (MRO)	1900	460		mg/Kg	10	12/16/2023 8:01:26 PM
Surr: DNOP	0	69-147	S	%Rec	10	12/16/2023 8:01:26 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2023 11:49:57 AM
Surr: BFB	93.0	15-244		%Rec	1	12/16/2023 11:49:57 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 11:49:57 AM
Toluene	ND	0.047		mg/Kg	1	12/16/2023 11:49:57 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2023 11:49:57 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/16/2023 11:49:57 AM
Surr: 4-Bromofluorobenzene	94.9	39.1-146		%Rec	1	12/16/2023 11:49:57 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: RBC
Chloride	6500	300		mg/Kg	100	12/18/2023 11:55:15 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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CLIENT: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H  
Lab ID: 2312564-013

Client Sample ID: BH23-16 2'  
Collection Date: 12/7/2023 11:00:00 AM  
Received Date: 12/9/2023 7:50:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/17/2023 5:16:18 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/17/2023 5:16:18 PM
Surr: DNOP	105	69-147		%Rec	1	12/17/2023 5:16:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/15/2023 11:02:00 PM
Surr: BFB	99.1	15-244		%Rec	1	12/15/2023 11:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/15/2023 11:02:00 PM
Toluene	ND	0.048		mg/Kg	1	12/15/2023 11:02:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/15/2023 11:02:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/15/2023 11:02:00 PM
Surr: 4-Bromofluorobenzene	99.9	39.1-146		%Rec	1	12/15/2023 11:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	1600	60		mg/Kg	20	12/18/2023 1:37:27 PM

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

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

## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-17 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 11:10:00 AM

Lab ID: 2312564-014

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/17/2023 5:48:16 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/17/2023 5:48:16 PM
Surr: DNOP	105	69-147		%Rec	1	12/17/2023 5:48:16 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>CCM</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 12:08:00 AM
Surr: BFB	106	15-244		%Rec	1	12/16/2023 12:08:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>CCM</b>
Benzene	ND	0.024		mg/Kg	1	12/16/2023 12:08:00 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 12:08:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 12:08:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 12:08:00 AM
Surr: 4-Bromofluorobenzene	97.2	39.1-146		%Rec	1	12/16/2023 12:08:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	360	60		mg/Kg	20	12/18/2023 2:14:39 PM

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

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

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-17 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 11:20:00 AM

Lab ID: 2312564-015

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/17/2023 5:58:54 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/17/2023 5:58:54 PM
Surr: DNOP	108	69-147		%Rec	1	12/17/2023 5:58:54 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2023 1:14:00 AM
Surr: BFB	97.6	15-244		%Rec	1	12/16/2023 1:14:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 1:14:00 AM
Toluene	ND	0.047		mg/Kg	1	12/16/2023 1:14:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2023 1:14:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/16/2023 1:14:00 AM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	12/16/2023 1:14:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	240	60		mg/Kg	20	12/18/2023 2:51:53 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-18 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 11:30:00 AM

Lab ID: 2312564-016

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/17/2023 6:09:29 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/17/2023 6:09:29 PM
Surr: DNOP	98.8	69-147		%Rec	1	12/17/2023 6:09:29 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>CCM</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 1:35:00 AM
Surr: BFB	99.2	15-244		%Rec	1	12/16/2023 1:35:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>CCM</b>
Benzene	ND	0.024		mg/Kg	1	12/16/2023 1:35:00 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 1:35:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 1:35:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2023 1:35:00 AM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	12/16/2023 1:35:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	1100	61		mg/Kg	20	12/18/2023 3:29:05 PM

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

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

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CLIENT: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H  
Lab ID: 2312564-017

Client Sample ID: BH23-18 2'  
Collection Date: 12/7/2023 11:40:00 AM  
Received Date: 12/9/2023 7:50:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/17/2023 6:30:28 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/17/2023 6:30:28 PM
Surr: DNOP	108	69-147		%Rec	1	12/17/2023 6:30:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 1:57:00 AM
Surr: BFB	101	15-244		%Rec	1	12/16/2023 1:57:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 1:57:00 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 1:57:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 1:57:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2023 1:57:00 AM
Surr: 4-Bromofluorobenzene	97.8	39.1-146		%Rec	1	12/16/2023 1:57:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	190	60		mg/Kg	20	12/18/2023 3:41:30 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-19 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 11:50:00 AM

Lab ID: 2312564-018

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	9200	94		mg/Kg	10	12/17/2023 6:41:00 PM
Motor Oil Range Organics (MRO)	5200	470		mg/Kg	10	12/17/2023 6:41:00 PM
Surr: DNOP	0	69-147	S	%Rec	10	12/17/2023 6:41:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>CCM</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 2:19:00 AM
Surr: BFB	95.6	15-244		%Rec	1	12/16/2023 2:19:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>CCM</b>
Benzene	ND	0.023		mg/Kg	1	12/16/2023 2:19:00 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 2:19:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 2:19:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2023 2:19:00 AM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	12/16/2023 2:19:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>SNS</b>
Chloride	1300	60		mg/Kg	20	12/18/2023 3:53:55 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-19 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 12:00:00 PM

Lab ID: 2312564-019

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	94	9.3		mg/Kg	1	12/17/2023 7:20:57 PM
Motor Oil Range Organics (MRO)	58	46		mg/Kg	1	12/17/2023 7:20:57 PM
Surr: DNOP	115	69-147		%Rec	1	12/17/2023 7:20:57 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 2:41:00 AM
Surr: BFB	96.8	15-244		%Rec	1	12/16/2023 2:41:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 2:41:00 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 2:41:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 2:41:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 2:41:00 AM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	12/16/2023 2:41:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	190	60		mg/Kg	20	12/18/2023 4:06:20 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312564  
Date Reported: 1/8/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-20 0'  
Project: Ragin Cajun 12 Fed 003H      Collection Date: 12/7/2023 12:10:00 PM  
Lab ID: 2312564-020      Matrix: SOIL      Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	3500	99		mg/Kg	10	12/17/2023 7:31:29 PM
Motor Oil Range Organics (MRO)	1700	500		mg/Kg	10	12/17/2023 7:31:29 PM
Surr: DNOP	0	69-147	S	%Rec	10	12/17/2023 7:31:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 3:03:00 AM
Surr: BFB	102	15-244		%Rec	1	12/16/2023 3:03:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 3:03:00 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 3:03:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 3:03:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 3:03:00 AM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	12/16/2023 3:03:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	8500	300		mg/Kg	100	12/19/2023 10:56:14 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-20 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 12:20:00 PM

Lab ID: 2312564-021

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	370	9.7		mg/Kg	1	12/17/2023 8:11:19 PM
Motor Oil Range Organics (MRO)	200	49		mg/Kg	1	12/17/2023 8:11:19 PM
Surr: DNOP	106	69-147		%Rec	1	12/17/2023 8:11:19 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 3:25:00 AM
Surr: BFB	94.4	15-244		%Rec	1	12/16/2023 3:25:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.023		mg/Kg	1	12/16/2023 3:25:00 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 3:25:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 3:25:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2023 3:25:00 AM
Surr: 4-Bromofluorobenzene	95.0	39.1-146		%Rec	1	12/16/2023 3:25:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KCB
Chloride	2700	150		mg/Kg	50	12/19/2023 10:31:25 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-21 0'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 12:30:00 PM

Lab ID: 2312564-022

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	290	9.8		mg/Kg	1	12/17/2023 8:51:06 PM
Motor Oil Range Organics (MRO)	290	49		mg/Kg	1	12/17/2023 8:51:06 PM
Surr: DNOP	118	69-147		%Rec	1	12/17/2023 8:51:06 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 3:47:00 AM
Surr: BFB	97.8	15-244		%Rec	1	12/16/2023 3:47:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 3:47:00 AM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 3:47:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 3:47:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 3:47:00 AM
Surr: 4-Bromofluorobenzene	98.4	39.1-146		%Rec	1	12/16/2023 3:47:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	2300	61		mg/Kg	20	12/18/2023 5:08:23 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312564

Date Reported: 1/8/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-21 2'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 12/7/2023 12:40:00 PM

Lab ID: 2312564-023

Matrix: SOIL

Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/17/2023 9:30:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/17/2023 9:30:54 PM
Surr: DNOP	143	69-147		%Rec	1	12/17/2023 9:30:54 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 4:30:00 AM
Surr: BFB	100	15-244		%Rec	1	12/16/2023 4:30:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 4:30:00 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 4:30:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 4:30:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 4:30:00 AM
Surr: 4-Bromofluorobenzene	98.8	39.1-146		%Rec	1	12/16/2023 4:30:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	710	60		mg/Kg	20	12/18/2023 5:20:48 PM

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

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

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312564  
Date Reported: 1/8/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-21 3.5'  
Project: Ragin Cajun 12 Fed 003H      Collection Date: 12/7/2023 12:50:00 PM  
Lab ID: 2312564-024      Matrix: SOIL      Received Date: 12/9/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/17/2023 9:41:25 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/17/2023 9:41:25 PM
Surr: DNOP	116	69-147		%Rec	1	12/17/2023 9:41:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 4:52:00 AM
Surr: BFB	100	15-244		%Rec	1	12/16/2023 4:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 4:52:00 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 4:52:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 4:52:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2023 4:52:00 AM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	12/16/2023 4:52:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	1600	60		mg/Kg	20	12/18/2023 5:33:12 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 Quantitative 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#: 2312564  
08-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H

Sample ID: <b>LCS-79427</b>	SampType: <b>lcs</b>			TestCode: <b>EPA Method 300.0: Anions</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79427</b>			RunNo: <b>101901</b>						
Prep Date: <b>12/16/2023</b>	Analysis Date: <b>12/16/2023</b>			SeqNo: <b>3758051</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	90	110			

Sample ID: <b>MB-79427</b>	SampType: <b>mblk</b>			TestCode: <b>EPA Method 300.0: Anions</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79427</b>			RunNo: <b>101901</b>						
Prep Date: <b>12/16/2023</b>	Analysis Date: <b>12/16/2023</b>			SeqNo: <b>3758053</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>MB-79443</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 300.0: Anions</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79443</b>			RunNo: <b>101943</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>			SeqNo: <b>3760317</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-79443</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 300.0: Anions</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79443</b>			RunNo: <b>101943</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>			SeqNo: <b>3760318</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	90	110			

Qualifiers:

- \*

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of 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#: 2312564

08-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Fed 003H

Sample ID: <b>LCS-79413</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79413</b>		RunNo: <b>101883</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/16/2023</b>		SeqNo: <b>3757009</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.7	61.9	130			
Surr: DNOP	5.5		5.000		110	69	147			

Sample ID: <b>MB-79413</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79413</b>		RunNo: <b>101883</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/16/2023</b>		SeqNo: <b>3757011</b>		Units: <b>mg/Kg</b>					
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	9.5		10.00		94.7	69	147			

Sample ID: <b>2312564-013AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>BH23-16 2'</b>	Batch ID: <b>79430</b>		RunNo: <b>101885</b>							
Prep Date: <b>12/17/2023</b>	Analysis Date: <b>12/17/2023</b>		SeqNo: <b>3757060</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.6	47.98	0	94.2	54.2	135			
Surr: DNOP	4.7		4.798		98.4	69	147			

Sample ID: <b>2312564-013AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>BH23-16 2'</b>	Batch ID: <b>79430</b>		RunNo: <b>101885</b>							
Prep Date: <b>12/17/2023</b>	Analysis Date: <b>12/17/2023</b>		SeqNo: <b>3757061</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.6	47.85	0	93.8	54.2	135	0.749	29.2	
Surr: DNOP	4.7		4.785		98.4	69	147	0	0	

Sample ID: <b>LCS-79430</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79430</b>		RunNo: <b>101885</b>							
Prep Date: <b>12/17/2023</b>	Analysis Date: <b>12/17/2023</b>		SeqNo: <b>3757085</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.1	61.9	130			
Surr: DNOP	5.2		5.000		103	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 Quantitative 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

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312564

08-Jan-24

**Client:** Vertex Resources Services, Inc.**Project:** Ragin Cajun 12 Fed 003H

Sample ID: <b>MB-79430</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79430</b>		RunNo: <b>101885</b>							
Prep Date: <b>12/17/2023</b>	Analysis Date: <b>12/17/2023</b>		SeqNo: <b>3757087</b>		Units: <b>mg/Kg</b>					
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	12		10.00		120	69	147			

Sample ID: <b>LCS-79438</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79438</b>		RunNo: <b>101904</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3758219</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.1		5.000		82.8	69	147			

Sample ID: <b>MB-79438</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79438</b>		RunNo: <b>101904</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3758220</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.1		10.00		80.5	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 Quantitative 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

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## QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312564

08-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Fed 003H

Sample ID: MB-79390	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range
Client ID: PBS	Batch ID: 79390	RunNo: 101869
Prep Date: 12/14/2023	Analysis Date: 12/16/2023	SeqNo: 3757524 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	950	1000 95.5 15 244

Sample ID: lcs-79392	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: LCSS	Batch ID: 79392	RunNo: 101891
Prep Date: 12/14/2023	Analysis Date: 12/15/2023	SeqNo: 3757552 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	23	5.0 25.00 0 92.7 70 130
Surr: BFB	2100	1000 214 15 244

Sample ID: mb-79392	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range
Client ID: PBS	Batch ID: 79392	RunNo: 101891
Prep Date: 12/14/2023	Analysis Date: 12/15/2023	SeqNo: 3757553 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	ND	5.0
Surr: BFB	1000	1000 103 15 244

Sample ID: 2312564-013ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: BH23-16 2'	Batch ID: 79392	RunNo: 101891
Prep Date: 12/14/2023	Analysis Date: 12/15/2023	SeqNo: 3757555 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	24	4.8 24.08 0 99.0 70 130
Surr: BFB	2200	963.4 225 15 244

Sample ID: 2312564-013amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range
Client ID: BH23-16 2'	Batch ID: 79392	RunNo: 101891
Prep Date: 12/14/2023	Analysis Date: 12/15/2023	SeqNo: 3757556 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	23	4.8 24.18 0 96.8 70 130 1.90 20
Surr: BFB	2200	967.1 225 15 244 0 0

Sample ID: LCS-79390	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: LCSS	Batch ID: 79390	RunNo: 101869
Prep Date: 12/14/2023	Analysis Date: 12/16/2023	SeqNo: 3757648 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 Quantitative 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#: 2312564

08-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Fed 003H

Sample ID: LCS-79390	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 79390	RunNo: 101869								
Prep Date: 12/14/2023	Analysis Date: 12/16/2023	SeqNo: 3757648 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	91.7	70	130			
Surr: BFB	1900		1000		192	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 Quantitative 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#: 2312564

08-Jan-24

**Client:** Vertex Resources Services, Inc.**Project:** Ragin Cajun 12 Fed 003H

Sample ID: <b>lcs-79392</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79392</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/15/2023</b>		SeqNo: <b>3757605</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.0	70	130			
Toluene	0.96	0.050	1.000	0	96.0	70	130			
Ethylbenzene	0.98	0.050	1.000	0	98.3	70	130			
Xylenes, Total	3.0	0.10	3.000	0	99.4	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.3	39.1	146			

Sample ID: <b>mb-79392</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79392</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/15/2023</b>		SeqNo: <b>3757606</b>		Units: <b>mg/Kg</b>					
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: <b>2312564-014ams</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>BH23-17 0'</b>	Batch ID: <b>79392</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/16/2023</b>		SeqNo: <b>3757609</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.024	0.9756	0	100	70	130			
Toluene	0.99	0.049	0.9756	0	102	70	130			
Ethylbenzene	1.0	0.049	0.9756	0	103	70	130			
Xylenes, Total	3.0	0.098	2.927	0	104	70	130			
Surr: 4-Bromofluorobenzene	0.96		0.9756		98.4	39.1	146			

Sample ID: <b>2312564-014amsd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>BH23-17 0'</b>	Batch ID: <b>79392</b>		RunNo: <b>101891</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/16/2023</b>		SeqNo: <b>3757610</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	0.9804	0	99.4	70	130	0.408	20	
Toluene	0.98	0.049	0.9804	0	99.8	70	130	1.24	20	
Ethylbenzene	1.0	0.049	0.9804	0	102	70	130	0.586	20	
Xylenes, Total	3.0	0.098	2.941	0	103	70	130	0.309	20	
Surr: 4-Bromofluorobenzene	0.96		0.9804		98.2	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 Quantitative 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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312564  
08-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H

Sample ID: MB-79390		SampType: MBLK			TestCode: EPA Method 8021B: Volatiles					
Client ID: PBS		Batch ID: 79390			RunNo: 101869					
Prep Date: 12/14/2023		Analysis Date: 12/16/2023			SeqNo: 3757656		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	0.97		1.000		97.2	39.1	146			

Sample ID: LCS-79390		SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID: LCSS		Batch ID: 79390			RunNo: 101869					
Prep Date: 12/14/2023		Analysis Date: 12/16/2023			SeqNo: 3757658		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.6	70	130			
Toluene	0.95	0.050	1.000	0	94.8	70	130			
Ethylbenzene	0.96	0.050	1.000	0	95.8	70	130			
Xylenes, Total	2.9	0.10	3.000	0	97.1	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.0	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 Quantitative 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



Environment Testin

Eurofins Environment Testing South  
Central, LLC4901 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: 2312564

RcptNo: 1

Received By: Cheyenne Cason

12/9/2023 7:50:00 AM

*Chul*

Completed By: Cheyenne Cason

12/9/2023 8:18:11 AM

*Chul*

Reviewed By:

*[Signature]*

12/09/23

Chain of Custody1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐2. How was the sample delivered? CourierLog In3. 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? Yes ☒ No ☐

(Note discrepancies on chain of custody)

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? Yes ☒ No ☐

(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

(&lt;2 or &gt;12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: *Chul 12/9/23*Special Handling (if applicable)15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Not Present	Morty		



## Chain-of-Custody Record

Client: Vertex (Devon)Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard☐ Level 4 (Full Validation)Accreditation: ☐ Az Compliance☐ NELAC ☐ Other☐ EDD (Type)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
12-7-23	1100	Soil	BH23-16 2	1-402.jar	ice	2312564
	1110		BH23-17 0'			013
	1120		BH23-17 2'			014
	1130		BH23-18 0'			015
	1140		BH23-18 2'			016
	1150		BH23-19 0'			017
	1200		BH23-19 2'			018
	1210		BH23-20 0'			019
	1220		BH23-20 2'			020
	1230		BH23-21 0'			021
	1240		BA23-21 2'			022
	1250		BH23 21 3.5'			023
						024

Date: 12/8/23 Time: 1900Date: 12/8/23 Time: 1900

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:

Ragin Cajun 12 Fed #003H

Project #:

23E-04614

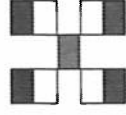
Project Manager:

Kent Stallings

Sampler:

Zach EnglebertOn Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 4.8 - 0248 (°C)

Container Type and #	Preservative Type	HEAL No.
1-402.jar	ice	2312564
		013
		014
		015
		016
		017
		018
		019
		020
		021
		022
		023
		024

Received by: Stallings Date: 12/8/23 Time: 1900Received by: Stallings Date: 12/8/23 Time: 1900HALL ENVIRONMENTAL  
ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

TPH 8015D (GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl <sup>-</sup> , Br <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>-</sup> , SO <sub>4</sub> <sup>-</sup>	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
<input checked="" type="checkbox"/> BTEX MTBE / TMB's (8021)	<input checked="" type="checkbox"/> TPH 8015D (GRO / DRO / MRO)	<input checked="" type="checkbox"/> EDB (Method 504.1)	<input checked="" type="checkbox"/> PAHs by 8310 or 8270SIMS	<input checked="" type="checkbox"/> RCRA 8 Metals	<input checked="" type="checkbox"/> Cl <sup>-</sup> , Br <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>-</sup> , SO <sub>4</sub> <sup>-</sup>	<input checked="" type="checkbox"/> 8260 (VOA)	<input checked="" type="checkbox"/> 8270 (Semi-VOA)	<input checked="" type="checkbox"/> Total Coliform (Present/Absent)

Remarks:

Direct bill to Devon  
cc Kstalling



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](http://www.hallenvironmental.com)

December 29, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Rajin Cajun 12 Fed 003H

OrderNo.: 2312629

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 16 sample(s) on 12/12/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-34 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 10:10:00 AM

Lab ID: 2312629-001

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/18/2023 12:27:28 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/18/2023 12:27:28 PM
Surr: DNOP	88.4	69-147		%Rec	1	12/18/2023 12:27:28 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 7:04:00 AM
Surr: BFB	96.3	15-244		%Rec	1	12/16/2023 7:04:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 7:04:00 AM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 7:04:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 7:04:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 7:04:00 AM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	12/16/2023 7:04:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: RBC
Chloride	64	60		mg/Kg	20	12/18/2023 6:08:08 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-36 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 10:40:00 AM

Lab ID: 2312629-002

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/18/2023 12:38:00 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/18/2023 12:38:00 PM
Surr: DNOP	92.3	69-147		%Rec	1	12/18/2023 12:38:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/16/2023 7:26:00 AM
Surr: BFB	96.6	15-244		%Rec	1	12/16/2023 7:26:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	12/16/2023 7:26:00 AM
Toluene	ND	0.047		mg/Kg	1	12/16/2023 7:26:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/16/2023 7:26:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2023 7:26:00 AM
Surr: 4-Bromofluorobenzene	94.7	39.1-146		%Rec	1	12/16/2023 7:26:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: RBC
Chloride	94	60		mg/Kg	20	12/18/2023 6:23:17 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-36 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 10:50:00 AM

Lab ID: 2312629-003

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/18/2023 12:48:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/18/2023 12:48:34 PM
Surr: DNOP	84.6	69-147		%Rec	1	12/18/2023 12:48:34 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 7:47:00 AM
Surr: BFB	94.0	15-244		%Rec	1	12/16/2023 7:47:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: CCM
Benzene	ND	0.023		mg/Kg	1	12/16/2023 7:47:00 AM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 7:47:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 7:47:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/16/2023 7:47:00 AM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	12/16/2023 7:47:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: RBC
Chloride	ND	60		mg/Kg	20	12/18/2023 6:38:27 PM

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

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

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-37 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 11:00:00 AM

Lab ID: 2312629-004

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 3:11:44 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 3:11:44 AM
Surr: DNOP	85.5	69-147		%Rec	1	12/16/2023 3:11:44 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 1:49:07 PM
Surr: BFB	95.9	15-244		%Rec	1	12/16/2023 1:49:07 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 1:49:07 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 1:49:07 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 1:49:07 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/16/2023 1:49:07 PM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	12/16/2023 1:49:07 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	67	60		mg/Kg	20	12/16/2023 3:54:08 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-37 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 11:10:00 AM

Lab ID: 2312629-005

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/16/2023 3:22:05 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 3:22:05 AM
Surr: DNOP	87.2	69-147		%Rec	1	12/16/2023 3:22:05 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 2:12:52 PM
Surr: BFB	96.6	15-244		%Rec	1	12/16/2023 2:12:52 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	12/16/2023 2:12:52 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 2:12:52 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 2:12:52 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2023 2:12:52 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	12/16/2023 2:12:52 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 5:09:56 PM

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

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

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-39 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 11:40:00 AM

Lab ID: 2312629-006

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/16/2023 3:42:46 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2023 3:42:46 AM
Surr: DNOP	86.4	69-147		%Rec	1	12/16/2023 3:42:46 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 2:37:04 PM
Surr: BFB	95.9	15-244		%Rec	1	12/16/2023 2:37:04 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 2:37:04 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 2:37:04 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 2:37:04 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 2:37:04 PM
Surr: 4-Bromofluorobenzene	97.8	39.1-146		%Rec	1	12/16/2023 2:37:04 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 5:25:06 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-39 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 11:50:00 AM

Lab ID: 2312629-007

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 3:53:12 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 3:53:12 AM
Surr: DNOP	85.2	69-147		%Rec	1	12/16/2023 3:53:12 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 3:00:50 PM
Surr: BFB	96.7	15-244		%Rec	1	12/16/2023 3:00:50 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	12/16/2023 3:00:50 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 3:00:50 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 3:00:50 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2023 3:00:50 PM
Surr: 4-Bromofluorobenzene	98.1	39.1-146		%Rec	1	12/16/2023 3:00:50 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	88	60		mg/Kg	20	12/16/2023 5:40:14 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-40 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 12:00:00 PM

Lab ID: 2312629-008

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 4:03:37 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 4:03:37 AM
Surr: DNOP	75.4	69-147		%Rec	1	12/16/2023 4:03:37 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 3:24:37 PM
Surr: BFB	95.1	15-244		%Rec	1	12/16/2023 3:24:37 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 3:24:37 PM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 3:24:37 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 3:24:37 PM
Xylenes, Total	ND	0.092		mg/Kg	1	12/16/2023 3:24:37 PM
Surr: 4-Bromofluorobenzene	96.3	39.1-146		%Rec	1	12/16/2023 3:24:37 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	60		mg/Kg	20	12/16/2023 5:55:24 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-40 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 12:10:00 PM

Lab ID: 2312629-009

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 4:14:03 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 4:14:03 AM
Surr: DNOP	83.2	69-147		%Rec	1	12/16/2023 4:14:03 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 3:48:32 PM
Surr: BFB	97.0	15-244		%Rec	1	12/16/2023 3:48:32 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 3:48:32 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 3:48:32 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 3:48:32 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 3:48:32 PM
Surr: 4-Bromofluorobenzene	98.2	39.1-146		%Rec	1	12/16/2023 3:48:32 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	ND	59		mg/Kg	20	12/16/2023 6:10:33 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-41 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 12:12:00 PM

Lab ID: 2312629-010

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/16/2023 4:24:40 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2023 4:24:40 AM
Surr: DNOP	83.2	69-147		%Rec	1	12/16/2023 4:24:40 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 4:12:15 PM
Surr: BFB	96.1	15-244		%Rec	1	12/16/2023 4:12:15 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 4:12:15 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 4:12:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 4:12:15 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 4:12:15 PM
Surr: 4-Bromofluorobenzene	98.1	39.1-146		%Rec	1	12/16/2023 4:12:15 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	310	60		mg/Kg	20	12/16/2023 6:25:43 PM

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

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

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-41 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 12:30:00 PM

Lab ID: 2312629-011

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/16/2023 4:35:13 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 4:35:13 AM
Surr: DNOP	82.4	69-147		%Rec	1	12/16/2023 4:35:13 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 4:36:23 PM
Surr: BFB	95.3	15-244		%Rec	1	12/16/2023 4:36:23 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 4:36:23 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 4:36:23 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 4:36:23 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2023 4:36:23 PM
Surr: 4-Bromofluorobenzene	96.6	39.1-146		%Rec	1	12/16/2023 4:36:23 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	140	60		mg/Kg	20	12/16/2023 6:40:53 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-42 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 12:40:00 PM

Lab ID: 2312629-012

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/16/2023 4:45:45 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2023 4:45:45 AM
Surr: DNOP	81.9	69-147		%Rec	1	12/16/2023 4:45:45 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 5:00:02 PM
Surr: BFB	95.2	15-244		%Rec	1	12/16/2023 5:00:02 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 5:00:02 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 5:00:02 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 5:00:02 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 5:00:02 PM
Surr: 4-Bromofluorobenzene	97.1	39.1-146		%Rec	1	12/16/2023 5:00:02 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	250	60		mg/Kg	20	12/16/2023 6:56:02 PM

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

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

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-42

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 12:50:00 PM

Lab ID: 2312629-013

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/16/2023 4:56:15 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 4:56:15 AM
Surr: DNOP	86.2	69-147		%Rec	1	12/16/2023 4:56:15 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2023 5:23:52 PM
Surr: BFB	97.2	15-244		%Rec	1	12/16/2023 5:23:52 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 5:23:52 PM
Toluene	ND	0.048		mg/Kg	1	12/16/2023 5:23:52 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2023 5:23:52 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2023 5:23:52 PM
Surr: 4-Bromofluorobenzene	99.4	39.1-146		%Rec	1	12/16/2023 5:23:52 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	220	60		mg/Kg	20	12/16/2023 7:41:37 PM

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

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

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-43

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 1:00:00 PM

Lab ID: 2312629-014

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/16/2023 5:06:45 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/16/2023 5:06:45 AM
Surr: DNOP	86.9	69-147		%Rec	1	12/16/2023 5:06:45 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2023 6:11:12 PM
Surr: BFB	96.7	15-244		%Rec	1	12/16/2023 6:11:12 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	12/16/2023 6:11:12 PM
Toluene	ND	0.050		mg/Kg	1	12/16/2023 6:11:12 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2023 6:11:12 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/16/2023 6:11:12 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	12/16/2023 6:11:12 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	580	60		mg/Kg	20	12/16/2023 7:56:45 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-43

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 1:10:00 PM

Lab ID: 2312629-015

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 5:17:12 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 5:17:12 AM
Surr: DNOP	82.0	69-147		%Rec	1	12/16/2023 5:17:12 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/16/2023 6:35:16 PM
Surr: BFB	93.8	15-244		%Rec	1	12/16/2023 6:35:16 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/16/2023 6:35:16 PM
Toluene	ND	0.046		mg/Kg	1	12/16/2023 6:35:16 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/16/2023 6:35:16 PM
Xylenes, Total	ND	0.092		mg/Kg	1	12/16/2023 6:35:16 PM
Surr: 4-Bromofluorobenzene	95.3	39.1-146		%Rec	1	12/16/2023 6:35:16 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	170	60		mg/Kg	20	12/16/2023 8:11:55 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312629

Date Reported: 12/29/2023

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-44

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/10/2023 1:20:00 PM

Lab ID: 2312629-016

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/16/2023 5:27:38 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/16/2023 5:27:38 AM
Surr: DNOP	85.1	69-147		%Rec	1	12/16/2023 5:27:38 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2023 6:58:50 PM
Surr: BFB	93.2	15-244		%Rec	1	12/16/2023 6:58:50 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/16/2023 6:58:50 PM
Toluene	ND	0.049		mg/Kg	1	12/16/2023 6:58:50 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2023 6:58:50 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/16/2023 6:58:50 PM
Surr: 4-Bromofluorobenzene	94.9	39.1-146		%Rec	1	12/16/2023 6:58:50 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	390	59		mg/Kg	20	12/16/2023 8:27:04 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 Quantitative 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#: 2312629

29-Dec-23

**Client:** Vertex Resources Services, Inc.**Project:** Rajin Cajun 12 Fed 003H

Sample ID: <b>LCS-79428</b>	SampType: <b>lcs</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79428</b>		RunNo: <b>101901</b>							
Prep Date: <b>12/16/2023</b>	Analysis Date: <b>12/16/2023</b>		SeqNo: <b>3758054</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.9	90	110			

Sample ID: <b>MB-79428</b>	SampType: <b>mblk</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79428</b>		RunNo: <b>101901</b>							
Prep Date: <b>12/16/2023</b>	Analysis Date: <b>12/16/2023</b>		SeqNo: <b>3758055</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>MB-79454</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79454</b>		RunNo: <b>101932</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760123</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-79454</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79454</b>		RunNo: <b>101932</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760124</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	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 Quantitative 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#: 2312629

29-Dec-23

**Client:** Vertex Resources Services, Inc.**Project:** Rajin Cajun 12 Fed 003H

Sample ID: <b>LCS-79419</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79419</b>			RunNo: <b>101872</b>						
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/16/2023</b>			SeqNo: <b>3756900</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.6	61.9	130			
Surr: DNOP	4.7		5.000		94.9	69	147			

Sample ID: <b>MB-79419</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79419</b>			RunNo: <b>101872</b>						
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/16/2023</b>			SeqNo: <b>3756903</b>		Units: <b>mg/Kg</b>				
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	8.6		10.00		86.1	69	147			

Sample ID: <b>LCS-79438</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79438</b>			RunNo: <b>101904</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>			SeqNo: <b>3758219</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.8	61.9	130			
Surr: DNOP	4.1		5.000		82.8	69	147			

Sample ID: <b>MB-79438</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79438</b>			RunNo: <b>101904</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/18/2023</b>			SeqNo: <b>3758220</b>		Units: <b>mg/Kg</b>				
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	8.1		10.00		80.5	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 Quantitative 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#: 2312629  
29-Dec-23

Client: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H

Sample ID: 2312629-004ams	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH23-37 0'	Batch ID: 79394			RunNo: 101869						
Prep Date: 12/14/2023	Analysis Date: 12/16/2023			SeqNo: 3757502		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.81	0	94.3	70	130			
Surr: BFB	1900		952.4		205	15	244			

Sample ID: 2312629-004amsd	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH23-37 0'	Batch ID: 79394			RunNo: 101869						
Prep Date: 12/14/2023	Analysis Date: 12/16/2023			SeqNo: 3757503		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.79	0	94.1	70	130	0.350	20	
Surr: BFB	2000		951.5		209	15	244	0	0	

Sample ID: lcs-79394	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 79394			RunNo: 101869						
Prep Date: 12/14/2023	Analysis Date: 12/16/2023			SeqNo: 3757525		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.4	70	130			
Surr: BFB	2000		1000		204	15	244			

Sample ID: mb-79394	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 79394			RunNo: 101869						
Prep Date: 12/14/2023	Analysis Date: 12/16/2023			SeqNo: 3757527		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	950		1000		95.2	15	244			

Sample ID: lcs-79392	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 79392			RunNo: 101891						
Prep Date: 12/14/2023	Analysis Date: 12/15/2023			SeqNo: 3757552		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.7	70	130			
Surr: BFB	2100		1000		214	15	244			

Sample ID: mb-79392	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 79392			RunNo: 101891						
Prep Date: 12/14/2023	Analysis Date: 12/15/2023			SeqNo: 3757553		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 Quantitative 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#: 2312629

29-Dec-23

Client: Vertex Resources Services, Inc.

Project: Rajin Cajun 12 Fed 003H

Sample ID: mb-79392	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 79392	RunNo: 101891								
Prep Date: 12/14/2023	Analysis Date: 12/15/2023	SeqNo: 3757553		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		103	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 Quantitative 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#: 2312629

29-Dec-23

**Client:** Vertex Resources Services, Inc.**Project:** Rajin Cajun 12 Fed 003H

Sample ID: <b>lcs-79392</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79392</b>			RunNo: <b>101891</b>						
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/15/2023</b>			SeqNo: <b>3757605</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.0	70	130			
Toluene	0.96	0.050	1.000	0	96.0	70	130			
Ethylbenzene	0.98	0.050	1.000	0	98.3	70	130			
Xylenes, Total	3.0	0.10	3.000	0	99.4	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.3	39.1	146			

Sample ID: <b>mb-79392</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79392</b>			RunNo: <b>101891</b>						
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/15/2023</b>			SeqNo: <b>3757606</b>		Units: <b>mg/Kg</b>				
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: <b>LCS-79394</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79394</b>			RunNo: <b>101869</b>						
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/16/2023</b>			SeqNo: <b>3757657</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.3	70	130			
Toluene	0.96	0.050	1.000	0	95.6	70	130			
Ethylbenzene	0.96	0.050	1.000	0	95.9	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.9	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.8	39.1	146			

Sample ID: <b>mb-79394</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8021B: Volatiles</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79394</b>			RunNo: <b>101869</b>						
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/16/2023</b>			SeqNo: <b>3757659</b>		Units: <b>mg/Kg</b>				
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	0.97		1.000		97.1	39.1	146			

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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#: 2312629  
29-Dec-23

Client: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H

Sample ID: 2312629-005ams		SampType: MS			TestCode: EPA Method 8021B: Volatiles					
Client ID: BH23-37 2'		Batch ID: 79394			RunNo: 101869					
Prep Date: 12/14/2023		Analysis Date: 12/16/2023			SeqNo: 3757739		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	0.9881	0	101	70	130			
Toluene	1.0	0.049	0.9881	0	102	70	130			
Ethylbenzene	1.0	0.049	0.9881	0	104	70	130			
Xylenes, Total	3.1	0.099	2.964	0	105	70	130			
Surr: 4-Bromofluorobenzene	0.93		0.9881		94.2	39.1	146			

Sample ID: 2312629-005amsd		SampType: MSD			TestCode: EPA Method 8021B: Volatiles					
Client ID: BH23-37 2'		Batch ID: 79394			RunNo: 101869					
Prep Date: 12/14/2023		Analysis Date: 12/16/2023			SeqNo: 3757740		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9843	0	107	70	130	5.61	20	
Toluene	1.1	0.049	0.9843	0	108	70	130	5.13	20	
Ethylbenzene	1.1	0.049	0.9843	0	109	70	130	3.74	20	
Xylenes, Total	3.3	0.098	2.953	0	111	70	130	5.34	20	
Surr: 4-Bromofluorobenzene	0.97		0.9843		98.1	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 Quantitative 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









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](http://www.hallenvironmental.com)

January 02, 2024

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Rajin Cajun 12 Fed 003H

OrderNo.: 2312632

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 24 sample(s) on 12/12/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-22 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 9:00:00 AM

Lab ID: 2312632-001

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/16/2023 12:07:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 12:07:21 AM
Surr: DNOP	88.3	69-147		%Rec	1	12/16/2023 12:07:21 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/18/2023 7:52:58 PM
Surr: BFB	95.3	15-244		%Rec	1	12/18/2023 7:52:58 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.025		mg/Kg	1	12/18/2023 7:52:58 PM
Toluene	ND	0.049		mg/Kg	1	12/18/2023 7:52:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/18/2023 7:52:58 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/18/2023 7:52:58 PM
Surr: 4-Bromofluorobenzene	96.2	39.1-146		%Rec	1	12/18/2023 7:52:58 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	83	60		mg/Kg	20	12/18/2023 5:03:55 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-22 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 9:10:00 AM

Lab ID: 2312632-002

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/16/2023 12:17:49 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/16/2023 12:17:49 AM
Surr: DNOP	87.0	69-147		%Rec	1	12/16/2023 12:17:49 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2023 8:16:49 PM
Surr: BFB	95.8	15-244		%Rec	1	12/18/2023 8:16:49 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/18/2023 8:16:49 PM
Toluene	ND	0.047		mg/Kg	1	12/18/2023 8:16:49 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2023 8:16:49 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/18/2023 8:16:49 PM
Surr: 4-Bromofluorobenzene	96.1	39.1-146		%Rec	1	12/18/2023 8:16:49 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	340	60		mg/Kg	20	12/18/2023 5:16:19 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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CLIENT: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H  
Lab ID: 2312632-003

Matrix: SOIL

Client Sample ID: BH23-23 0'  
Collection Date: 12/8/2023 9:20:00 AM  
Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	75	9.4		mg/Kg	1	12/16/2023 12:28:15 AM
Motor Oil Range Organics (MRO)	120	47		mg/Kg	1	12/16/2023 12:28:15 AM
Surr: DNOP	90.4	69-147		%Rec	1	12/16/2023 12:28:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 8:40:47 PM
Surr: BFB	92.2	15-244		%Rec	1	12/18/2023 8:40:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/18/2023 8:40:47 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 8:40:47 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 8:40:47 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/18/2023 8:40:47 PM
Surr: 4-Bromofluorobenzene	92.8	39.1-146		%Rec	1	12/18/2023 8:40:47 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1800	60		mg/Kg	20	12/18/2023 5:28:44 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312632  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-23 2'  
Project: Rajin Cajun 12 Fed 003H      Collection Date: 12/8/2023 9:30:00 AM  
Lab ID: 2312632-004      Matrix: SOIL      Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 12:48:55 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 12:48:55 AM
Surr: DNOP	89.3	69-147		%Rec	1	12/16/2023 12:48:55 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/18/2023 9:04:24 PM
Surr: BFB	94.3	15-244		%Rec	1	12/18/2023 9:04:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/18/2023 9:04:24 PM
Toluene	ND	0.049		mg/Kg	1	12/18/2023 9:04:24 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/18/2023 9:04:24 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/18/2023 9:04:24 PM
Surr: 4-Bromofluorobenzene	95.0	39.1-146		%Rec	1	12/18/2023 9:04:24 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	290	60		mg/Kg	20	12/18/2023 5:41:09 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H  
Lab ID: 2312632-005

Client Sample ID: BH23-24 0'  
Collection Date: 12/8/2023 9:40:00 AM  
Received Date: 12/12/2023 7:25:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	190	10		mg/Kg	1	12/16/2023 12:59:21 AM
Motor Oil Range Organics (MRO)	330	50		mg/Kg	1	12/16/2023 12:59:21 AM
Surr: DNOP	84.8	69-147		%Rec	1	12/16/2023 12:59:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 9:51:45 PM
Surr: BFB	93.7	15-244		%Rec	1	12/18/2023 9:51:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/18/2023 9:51:45 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 9:51:45 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 9:51:45 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/18/2023 9:51:45 PM
Surr: 4-Bromofluorobenzene	94.6	39.1-146		%Rec	1	12/18/2023 9:51:45 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	370	60		mg/Kg	20	12/18/2023 5:53:33 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-24 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 9:50:00 AM

Lab ID: 2312632-006

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/16/2023 1:38:54 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/16/2023 1:38:54 AM
Surr: DNOP	93.0	69-147		%Rec	1	12/16/2023 1:38:54 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 10:15:30 PM
Surr: BFB	93.4	15-244		%Rec	1	12/18/2023 10:15:30 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/18/2023 10:15:30 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 10:15:30 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 10:15:30 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/18/2023 10:15:30 PM
Surr: 4-Bromofluorobenzene	94.8	39.1-146		%Rec	1	12/18/2023 10:15:30 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	76	60		mg/Kg	20	12/18/2023 6:05:58 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-25 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 10:00:00 AM

Lab ID: 2312632-007

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>PRD</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/16/2023 1:49:20 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2023 1:49:20 AM
Surr: DNOP	91.7	69-147		%Rec	1	12/16/2023 1:49:20 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 11:03:12 PM
Surr: BFB	96.7	15-244		%Rec	1	12/18/2023 11:03:12 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/18/2023 11:03:12 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 11:03:12 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 11:03:12 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/18/2023 11:03:12 PM
Surr: 4-Bromofluorobenzene	96.3	39.1-146		%Rec	1	12/18/2023 11:03:12 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>JMT</b>
Chloride	1300	60		mg/Kg	20	12/18/2023 6:18:22 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-25 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 10:10:00 AM

Lab ID: 2312632-008

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 1:59:43 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 1:59:43 AM
Surr: DNOP	89.1	69-147		%Rec	1	12/16/2023 1:59:43 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/18/2023 11:27:08 PM
Surr: BFB	97.4	15-244		%Rec	1	12/18/2023 11:27:08 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/18/2023 11:27:08 PM
Toluene	ND	0.049		mg/Kg	1	12/18/2023 11:27:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/18/2023 11:27:08 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/18/2023 11:27:08 PM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	12/18/2023 11:27:08 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	100	61		mg/Kg	20	12/18/2023 6:30:47 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312632  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-26 0'  
Project: Rajin Cajun 12 Fed 003H      Collection Date: 12/8/2023 10:20:00 AM  
Lab ID: 2312632-009      Matrix: SOIL      Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/16/2023 2:10:02 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/16/2023 2:10:02 AM
Surr: DNOP	90.4	69-147		%Rec	1	12/16/2023 2:10:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/18/2023 11:51:12 PM
Surr: BFB	93.4	15-244		%Rec	1	12/18/2023 11:51:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	12/18/2023 11:51:12 PM
Toluene	ND	0.046		mg/Kg	1	12/18/2023 11:51:12 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/18/2023 11:51:12 PM
Xylenes, Total	ND	0.092		mg/Kg	1	12/18/2023 11:51:12 PM
Surr: 4-Bromofluorobenzene	94.6	39.1-146		%Rec	1	12/18/2023 11:51:12 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	250	59		mg/Kg	20	12/18/2023 7:08:01 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-26 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 10:30:00 AM

Lab ID: 2312632-010

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/16/2023 2:20:19 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 2:20:19 AM
Surr: DNOP	108	69-147		%Rec	1	12/16/2023 2:20:19 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/19/2023 12:15:17 AM
Surr: BFB	93.0	15-244		%Rec	1	12/19/2023 12:15:17 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/19/2023 12:15:17 AM
Toluene	ND	0.048		mg/Kg	1	12/19/2023 12:15:17 AM
Ethylbenzene	ND	0.048		mg/Kg	1	12/19/2023 12:15:17 AM
Xylenes, Total	ND	0.096		mg/Kg	1	12/19/2023 12:15:17 AM
Surr: 4-Bromofluorobenzene	93.1	39.1-146		%Rec	1	12/19/2023 12:15:17 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	100	60		mg/Kg	20	12/18/2023 7:20:25 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-27 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 10:40:00 AM

Lab ID: 2312632-011

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	12/16/2023 8:33:04 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/16/2023 8:33:04 PM
Surr: DNOP	89.9	69-147		%Rec	1	12/16/2023 8:33:04 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 12:14:00 PM
Surr: BFB	101	15-244		%Rec	1	12/18/2023 12:14:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 12:14:00 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 12:14:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 12:14:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/18/2023 12:14:00 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	12/18/2023 12:14:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KCB
Chloride	2100	150		mg/Kg	50	12/19/2023 10:43:50 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-27 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 10:50:00 AM

Lab ID: 2312632-012

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	12/16/2023 9:04:32 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 9:04:32 PM
Surr: DNOP	98.6	69-147		%Rec	1	12/16/2023 9:04:32 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2023 1:21:00 PM
Surr: BFB	99.3	15-244		%Rec	1	12/18/2023 1:21:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 1:21:00 PM
Toluene	ND	0.047		mg/Kg	1	12/18/2023 1:21:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2023 1:21:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/18/2023 1:21:00 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	12/18/2023 1:21:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	210	60		mg/Kg	20	12/18/2023 7:45:13 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-28 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 11:00:00 AM

Lab ID: 2312632-013

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	12/16/2023 9:15:00 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	12/16/2023 9:15:00 PM
Surr: DNOP	86.0	69-147		%Rec	1	12/16/2023 9:15:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 2:27:00 PM
Surr: BFB	101	15-244		%Rec	1	12/18/2023 2:27:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 2:27:00 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 2:27:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 2:27:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/18/2023 2:27:00 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	12/18/2023 2:27:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	530	60		mg/Kg	20	12/18/2023 7:57:38 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-28 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 11:10:00 AM

Lab ID: 2312632-014

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/16/2023 9:35:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/16/2023 9:35:55 PM
Surr: DNOP	91.9	69-147		%Rec	1	12/16/2023 9:35:55 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 2:49:00 PM
Surr: BFB	101	15-244		%Rec	1	12/18/2023 2:49:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 2:49:00 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 2:49:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 2:49:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/18/2023 2:49:00 PM
Surr: 4-Bromofluorobenzene	98.7	39.1-146		%Rec	1	12/18/2023 2:49:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: JMT
Chloride	80	60		mg/Kg	20	12/18/2023 8:10:02 PM

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

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

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-29 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 11:20:00 AM

Lab ID: 2312632-015

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 9:46:29 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 9:46:29 PM
Surr: DNOP	86.8	69-147		%Rec	1	12/16/2023 9:46:29 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/18/2023 3:11:00 PM
Surr: BFB	101	15-244		%Rec	1	12/18/2023 3:11:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/18/2023 3:11:00 PM
Toluene	ND	0.049		mg/Kg	1	12/18/2023 3:11:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/18/2023 3:11:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/18/2023 3:11:00 PM
Surr: 4-Bromofluorobenzene	99.6	39.1-146		%Rec	1	12/18/2023 3:11:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	1200	60		mg/Kg	20	12/18/2023 6:22:51 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312632  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H  
Lab ID: 2312632-016

Client Sample ID: BH23-29 2'  
Collection Date: 12/8/2023 11:30:00 AM  
Received Date: 12/12/2023 7:25:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	12/16/2023 9:57:01 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/16/2023 9:57:01 PM
Surr: DNOP	96.1	69-147		%Rec	1	12/16/2023 9:57:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/18/2023 3:33:00 PM
Surr: BFB	97.1	15-244		%Rec	1	12/18/2023 3:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/18/2023 3:33:00 PM
Toluene	ND	0.050		mg/Kg	1	12/18/2023 3:33:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/18/2023 3:33:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/18/2023 3:33:00 PM
Surr: 4-Bromofluorobenzene	98.6	39.1-146		%Rec	1	12/18/2023 3:33:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	240	60		mg/Kg	20	12/18/2023 6:35:16 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-30 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 11:40:00 AM

Lab ID: 2312632-017

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 10:07:31 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 10:07:31 PM
Surr: DNOP	86.9	69-147		%Rec	1	12/16/2023 10:07:31 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 3:55:00 PM
Surr: BFB	101	15-244		%Rec	1	12/18/2023 3:55:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 3:55:00 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 3:55:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 3:55:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/18/2023 3:55:00 PM
Surr: 4-Bromofluorobenzene	99.0	39.1-146		%Rec	1	12/18/2023 3:55:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	96	60		mg/Kg	20	12/18/2023 8:02:09 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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CLIENT: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H  
Lab ID: 2312632-018

Client Sample ID: BH23-30 2'  
Collection Date: 12/8/2023 11:50:00 AM  
Received Date: 12/12/2023 7:25:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	12/16/2023 10:18:02 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/16/2023 10:18:02 PM
Surr: DNOP	102	69-147		%Rec	1	12/16/2023 10:18:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/18/2023 4:17:00 PM
Surr: BFB	102	15-244		%Rec	1	12/18/2023 4:17:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	12/18/2023 4:17:00 PM
Toluene	ND	0.049		mg/Kg	1	12/18/2023 4:17:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/18/2023 4:17:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/18/2023 4:17:00 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	12/18/2023 4:17:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	12/18/2023 8:14:34 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H  
Lab ID: 2312632-019

Client Sample ID: BH23-31 0'  
Collection Date: 12/8/2023 12:00:00 PM  
Received Date: 12/12/2023 7:25:00 AM

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 10:28:33 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 10:28:33 PM
Surr: DNOP	99.6	69-147		%Rec	1	12/16/2023 10:28:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2023 4:39:00 PM
Surr: BFB	99.4	15-244		%Rec	1	12/18/2023 4:39:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 4:39:00 PM
Toluene	ND	0.047		mg/Kg	1	12/18/2023 4:39:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2023 4:39:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/18/2023 4:39:00 PM
Surr: 4-Bromofluorobenzene	98.1	39.1-146		%Rec	1	12/18/2023 4:39:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	1000	60		mg/Kg	20	12/18/2023 8:26:58 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312632  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-31 2'  
Project: Rajin Cajun 12 Fed 003H      Collection Date: 12/8/2023 12:10:00 PM  
Lab ID: 2312632-020      Matrix: SOIL      Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/16/2023 10:39:01 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/16/2023 10:39:01 PM
Surr: DNOP	96.6	69-147		%Rec	1	12/16/2023 10:39:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/18/2023 5:02:00 PM
Surr: BFB	100	15-244		%Rec	1	12/18/2023 5:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/18/2023 5:02:00 PM
Toluene	ND	0.046		mg/Kg	1	12/18/2023 5:02:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/18/2023 5:02:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	12/18/2023 5:02:00 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	12/18/2023 5:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	280	60		mg/Kg	20	12/18/2023 8:39:22 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-32 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 12:20:00 PM

Lab ID: 2312632-021

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/16/2023 10:49:30 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/16/2023 10:49:30 PM
Surr: DNOP	71.5	69-147		%Rec	1	12/16/2023 10:49:30 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2023 5:46:00 PM
Surr: BFB	99.9	15-244		%Rec	1	12/18/2023 5:46:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 5:46:00 PM
Toluene	ND	0.047		mg/Kg	1	12/18/2023 5:46:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2023 5:46:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/18/2023 5:46:00 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	12/18/2023 5:46:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	12/18/2023 8:51:47 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312632  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-32 2'  
Project: Rajin Cajun 12 Fed 003H      Collection Date: 12/8/2023 12:30:00 PM  
Lab ID: 2312632-022      Matrix: SOIL      Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 10:59:59 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 10:59:59 PM
Surr: DNOP	98.5	69-147		%Rec	1	12/16/2023 10:59:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/18/2023 6:08:00 PM
Surr: BFB	98.4	15-244		%Rec	1	12/18/2023 6:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 6:08:00 PM
Toluene	ND	0.048		mg/Kg	1	12/18/2023 6:08:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/18/2023 6:08:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	12/18/2023 6:08:00 PM
Surr: 4-Bromofluorobenzene	97.8	39.1-146		%Rec	1	12/18/2023 6:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	12/18/2023 9:04:11 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-33 0'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 12:40:00 PM

Lab ID: 2312632-023

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 11:10:27 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 11:10:27 PM
Surr: DNOP	89.8	69-147		%Rec	1	12/16/2023 11:10:27 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2023 6:30:00 PM
Surr: BFB	100	15-244		%Rec	1	12/18/2023 6:30:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/18/2023 6:30:00 PM
Toluene	ND	0.047		mg/Kg	1	12/18/2023 6:30:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2023 6:30:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/18/2023 6:30:00 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	12/18/2023 6:30:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	1200	60		mg/Kg	20	12/18/2023 9:41:26 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312632

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-33 2'

Project: Rajin Cajun 12 Fed 003H

Collection Date: 12/8/2023 12:50:00 PM

Lab ID: 2312632-024

Matrix: SOIL

Received Date: 12/12/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/16/2023 11:20:58 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/16/2023 11:20:58 PM
Surr: DNOP	92.8	69-147		%Rec	1	12/16/2023 11:20:58 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/18/2023 6:52:00 PM
Surr: BFB	98.2	15-244		%Rec	1	12/18/2023 6:52:00 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/18/2023 6:52:00 PM
Toluene	ND	0.047		mg/Kg	1	12/18/2023 6:52:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/18/2023 6:52:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/18/2023 6:52:00 PM
Surr: 4-Bromofluorobenzene	96.4	39.1-146		%Rec	1	12/18/2023 6:52:00 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	ND	60		mg/Kg	20	12/18/2023 9:53:51 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312632  
02-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H

Sample ID: MB-79462	SampType: mblk			TestCode: EPA Method 300.0: Anions						
Client ID: PBS	Batch ID: 79462			RunNo: 101929						
Prep Date: 12/18/2023	Analysis Date: 12/18/2023			SeqNo: 3759960			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-79462	SampType: lcs			TestCode: EPA Method 300.0: Anions						
Client ID: LCSS	Batch ID: 79462			RunNo: 101929						
Prep Date: 12/18/2023	Analysis Date: 12/18/2023			SeqNo: 3759961			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.8	90	110			

Sample ID: MB-79472	SampType: MBLK			TestCode: EPA Method 300.0: Anions						
Client ID: PBS	Batch ID: 79472			RunNo: 101943						
Prep Date: 12/18/2023	Analysis Date: 12/18/2023			SeqNo: 3760347			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-79472	SampType: LCS			TestCode: EPA Method 300.0: Anions						
Client ID: LCSS	Batch ID: 79472			RunNo: 101943						
Prep Date: 12/18/2023	Analysis Date: 12/18/2023			SeqNo: 3760348			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.4	90	110			

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of 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#: 2312632

02-Jan-24

**Client:** Vertex Resources Services, Inc.**Project:** Rajin Cajun 12 Fed 003H

Sample ID: 2312632-010AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-26 2'	Batch ID: 79420	RunNo: 101872								
Prep Date: 12/15/2023	Analysis Date: 12/16/2023	SeqNo: 3756897 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.6	48.03	0	101	54.2	135			
Surr: DNOP	5.0		4.803		104	69	147			

Sample ID: 2312632-010AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-26 2'	Batch ID: 79420	RunNo: 101872								
Prep Date: 12/15/2023	Analysis Date: 12/16/2023	SeqNo: 3756898 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.3	46.25	0	98.1	54.2	135	6.52	29.2	
Surr: DNOP	5.1		4.625		111	69	147	0	0	

Sample ID: LCS-79420	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 79420	RunNo: 101872								
Prep Date: 12/15/2023	Analysis Date: 12/15/2023	SeqNo: 3756901 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	97.0	61.9	130			
Surr: DNOP	5.0		5.000		99.8	69	147			

Sample ID: MB-79420	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 79420	RunNo: 101872								
Prep Date: 12/15/2023	Analysis Date: 12/15/2023	SeqNo: 3756904 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		113	69	147			

Sample ID: 2312632-011AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-27 0'	Batch ID: 79421	RunNo: 101883								
Prep Date: 12/15/2023	Analysis Date: 12/16/2023	SeqNo: 3756988 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.6	47.89	0	93.7	54.2	135			
Surr: DNOP	5.2		4.789		109	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 Quantitative 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

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312632

02-Jan-24

**Client:** Vertex Resources Services, Inc.**Project:** Rajin Cajun 12 Fed 003H

Sample ID: 2312632-011AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-27 0'	Batch ID: 79421	RunNo: 101883								
Prep Date: 12/15/2023	Analysis Date: 12/16/2023	SeqNo: 3756989 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	8.5	42.41	0	91.7	54.2	135	14.3	29.2	
Surr: DNOP	4.6		4.241		108	69	147	0	0	

Sample ID: LCS-79421	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 79421	RunNo: 101883								
Prep Date: 12/15/2023	Analysis Date: 12/16/2023	SeqNo: 3757010 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.5	61.9	130			
Surr: DNOP	5.3		5.000		106	69	147			

Sample ID: MB-79421	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 79421	RunNo: 101883								
Prep Date: 12/15/2023	Analysis Date: 12/16/2023	SeqNo: 3757012 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	9.4		10.00		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 Quantitative 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

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## QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312632

02-Jan-24

Client: Vertex Resources Services, Inc.

Project: Rajin Cajun 12 Fed 003H

Sample ID: <b>lcs-79400</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79400</b>		RunNo: <b>101914</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3759511</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.0	70	130			
Surr: BFB	2100		1000		206	15	244			

Sample ID: <b>mb-79400</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79400</b>		RunNo: <b>101914</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3759512</b>		Units: <b>mg/Kg</b>					
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		98.6	15	244			

Sample ID: <b>lcs-79410</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79410</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760468</b>		Units: <b>mg/Kg</b>					
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		228	15	244			

Sample ID: <b>mb-79410</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79410</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760469</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	15	244			

Sample ID: <b>2312632-011ams</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>BH23-27 0'</b>	Batch ID: <b>79410</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760471</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.97	0	98.9	70	130			
Surr: BFB	2200		958.8		226	15	244			

Sample ID: <b>2312632-011amsd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>BH23-27 0'</b>	Batch ID: <b>79410</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760472</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.97	0	98.9	70	130			
Surr: BFB	2200		958.8		226	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 Quantitative 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#: 2312632

02-Jan-24

**Client:** Vertex Resources Services, Inc.**Project:** Rajin Cajun 12 Fed 003H

Sample ID: 2312632-011amsd		SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range					
Client ID: BH23-27 0'		Batch ID: 79410			RunNo: 101947					
Prep Date: 12/15/2023		Analysis Date: 12/18/2023			SeqNo: 3760472		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.90	0	100	70	130	1.20	20	
Surr: BFB	2200		956.0		225	15	244	0	0	

Sample ID: <b>lcs-79426</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>		Batch ID: <b>79426</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>		Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760492</b>		Units: <b>%Rec</b>					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		2200		1000		216	15	244			

Sample ID: <b>mb-79426</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>		Batch ID: <b>79426</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>		Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760493</b>			Units: <b>%Rec</b>				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		1000		1000		100	15	244			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
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H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative 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

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## QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312632

02-Jan-24

Client: Vertex Resources Services, Inc.

Project: Rajin Cajun 12 Fed 003H

Sample ID: <b>LCS-79400</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79400</b>		RunNo: <b>101914</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3759538</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.9	70	130			
Toluene	0.97	0.050	1.000	0	96.6	70	130			
Ethylbenzene	0.98	0.050	1.000	0	97.9	70	130			
Xylenes, Total	2.9	0.10	3.000	0	98.3	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	39.1	146			

Sample ID: <b>mb-79400</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79400</b>		RunNo: <b>101914</b>							
Prep Date: <b>12/14/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3759539</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		98.7	39.1	146			

Sample ID: <b>lcs-79410</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79410</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760583</b>		Units: <b>mg/Kg</b>					
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	102	70	130			
Ethylbenzene	1.0	0.050	1.000	0	104	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: <b>mb-79410</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79410</b>		RunNo: <b>101947</b>							
Prep Date: <b>12/15/2023</b>	Analysis Date: <b>12/18/2023</b>		SeqNo: <b>3760584</b>		Units: <b>mg/Kg</b>					
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		101	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 Quantitative 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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2312632

02-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Rajin Cajun 12 Fed 003H

Sample ID: 2312632-012ams	SampType: MS			TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-27 2'	Batch ID: 79410			RunNo: 101947						
Prep Date: 12/15/2023	Analysis Date: 12/18/2023			SeqNo: 3760587		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.024	0.9407	0	104	70	130			
Toluene	0.99	0.047	0.9407	0	106	70	130			
Ethylbenzene	1.0	0.047	0.9407	0	108	70	130			
Xylenes, Total	3.1	0.094	2.822	0	108	70	130			
Surr: 4-Bromofluorobenzene	0.95		0.9407		101	39.1	146			

Sample ID: 2312632-012amsd	SampType: MSD			TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-27 2'	Batch ID: 79410			RunNo: 101947						
Prep Date: 12/15/2023	Analysis Date: 12/18/2023			SeqNo: 3760588		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.024	0.9479	0	102	70	130	1.25	20	
Toluene	0.98	0.047	0.9479	0	103	70	130	1.97	20	
Ethylbenzene	1.0	0.047	0.9479	0	106	70	130	1.47	20	
Xylenes, Total	3.0	0.095	2.844	0	106	70	130	0.951	20	
Surr: 4-Bromofluorobenzene	0.96		0.9479		101	39.1	146	0	0	

Sample ID: lcs-79426	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 79426			RunNo: 101947						
Prep Date: 12/15/2023	Analysis Date: 12/18/2023			SeqNo: 3760607		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.97		1.000		97.4	39.1	146			

Sample ID: mb-79426	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 79426			RunNo: 101947						
Prep Date: 12/15/2023	Analysis Date: 12/18/2023			SeqNo: 3760608		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	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 Quantitative 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

Page 31 of 31



Environment Testin

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: 2312632

RcptNo: 1

Received By: Juan Rojas

12/12/2023 7:25:00 AM

Completed By: Cheyenne Cason

12/12/2023 9:54:08 AM

Reviewed By:

ju 12/12/23

Juan Rojas

Cheyenne Cason

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:

(&lt;2 or &gt;12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: MP 12/12/23Special 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	2.5	Good	Not Present	Morty		

## Chain-of-Custody Record

Client: Vertex (Devon)Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)Accreditation: ☐ Az Compliance☐ NELAC ☐ Other☐ EDD (Type)

Project Manager:

Kent Stallings

Sampler: Zach EnglebertOn Ice: ☐ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 25.0-2.5 (°C)

Container Type and #

Preservative Type

HEAL No.

1402 jar ice

001

002

003

004

005

006

007

008

009

010

011

012

Date: 12/13Date: 12/13

Relinquished by:

Relinquished by:

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:

Ragin Cajun 12 Fed #003H

Project #:

23E-04614

## Analysis Request

BTX / MTBE / TMB's (8021) ☒

TPH8015D(GRO / DRO / MRO) ☒

8081 Pesticides/8082 PCB's ☒

EDB (Method 504.1) ☒

PAHs by 8310 or 8270SIMS ☒

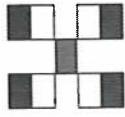
RCRA 8 Metals ☒

C, F, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub> ☒

8260 (VOA) ☒

8270 (Semi-VOA) ☒

Total Coliform (Present/Absent) ☒


**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Remarks: Direct bill to Devon

cc Kstallings Gaverterx.ca

## Chain-of-Custody Record

Client: Vertex (Deron)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

Project Name:

Ragin Cajun 12 Fed #0034

Project #:

23E-04614

Project Manager:

Kent StallingsSampler: Zach EnglebertOn Ice: ☐ Yes ☒ No# of Coolers: 1Cooler Temp (including CF): 7.50 = 25 (°C)

Container Type and #

Preservative Type

HEAL No.

402jar-1 ice2312632ice00-014015016017018019020021022023024Date: 12/12/23Time: 19:00Date: 12/12/23Time: 7:25Received by: MunozVia: curierReceived by: MunozVia: curier

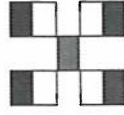
Date

Time

Date

Time

Remarks:

Direct bill to Deroncc Stallings Carver x.ca208HALL ENVIRONMENTAL  
ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

8081 Pesticides/8082 PCB's

TPH/8015D(GRO / DRO / MRO)

BTEX / MTBE / TMB's (8021)

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

Cr, Br, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)



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](http://www.hallenvironmental.com)

January 02, 2024

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Ragin Cajun

OrderNo.: 2312751

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 18 sample(s) on 12/13/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312751  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-45 0'  
Project: Ragin Cajun      Collection Date: 12/11/2023 9:00:00 AM  
Lab ID: 2312751-001      Matrix: SOIL      Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/19/2023 5:40:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2023 5:40:35 PM
Surr: DNOP	98.7	69-147		%Rec	1	12/19/2023 5:40:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/20/2023 4:47:00 AM
Surr: BFB	99.7	15-244		%Rec	1	12/20/2023 4:47:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/20/2023 4:47:00 AM
Toluene	ND	0.046		mg/Kg	1	12/20/2023 4:47:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/20/2023 4:47:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	12/20/2023 4:47:00 AM
Surr: 4-Bromofluorobenzene	95.3	39.1-146		%Rec	1	12/20/2023 4:47:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	ND	60		mg/Kg	20	12/19/2023 7:02:01 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-45 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 9:10:00 AM

Lab ID: 2312751-002

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/19/2023 6:04:50 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/19/2023 6:04:50 PM
Surr: DNOP	102	69-147		%Rec	1	12/19/2023 6:04:50 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/20/2023 5:09:00 AM
Surr: BFB	102	15-244		%Rec	1	12/20/2023 5:09:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/20/2023 5:09:00 AM
Toluene	ND	0.046		mg/Kg	1	12/20/2023 5:09:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/20/2023 5:09:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	12/20/2023 5:09:00 AM
Surr: 4-Bromofluorobenzene	96.5	39.1-146		%Rec	1	12/20/2023 5:09:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KCB
Chloride	ND	60		mg/Kg	20	12/19/2023 7:14:26 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312751  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-46 0'  
Project: Ragin Cajun      Collection Date: 12/11/2023 9:20:00 AM  
Lab ID: 2312751-003      Matrix: SOIL      Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/19/2023 6:29:03 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2023 6:29:03 PM
Surr: DNOP	103	69-147		%Rec	1	12/19/2023 6:29:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2023 5:31:00 AM
Surr: BFB	100	15-244		%Rec	1	12/20/2023 5:31:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/20/2023 5:31:00 AM
Toluene	ND	0.047		mg/Kg	1	12/20/2023 5:31:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2023 5:31:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/20/2023 5:31:00 AM
Surr: 4-Bromofluorobenzene	95.1	39.1-146		%Rec	1	12/20/2023 5:31:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	74	60		mg/Kg	20	12/19/2023 7:26:51 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-46 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 9:30:00 AM

Lab ID: 2312751-004

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/19/2023 6:53:16 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/19/2023 6:53:16 PM
Surr: DNOP	103	69-147		%Rec	1	12/19/2023 6:53:16 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/20/2023 5:53:00 AM
Surr: BFB	95.7	15-244		%Rec	1	12/20/2023 5:53:00 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/20/2023 5:53:00 AM
Toluene	ND	0.049		mg/Kg	1	12/20/2023 5:53:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/20/2023 5:53:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	12/20/2023 5:53:00 AM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	12/20/2023 5:53:00 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KCB
Chloride	230	60		mg/Kg	20	12/19/2023 8:04:05 PM

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

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

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312751  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-47 0'  
Project: Ragin Cajun      Collection Date: 12/11/2023 9:40:00 AM  
Lab ID: 2312751-005      Matrix: SOIL      Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/19/2023 7:17:23 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/19/2023 7:17:23 PM
Surr: DNOP	104	69-147		%Rec	1	12/19/2023 7:17:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2023 6:15:00 AM
Surr: BFB	102	15-244		%Rec	1	12/20/2023 6:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/20/2023 6:15:00 AM
Toluene	ND	0.047		mg/Kg	1	12/20/2023 6:15:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2023 6:15:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	12/20/2023 6:15:00 AM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	12/20/2023 6:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	920	60		mg/Kg	20	12/19/2023 8:16:29 PM

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312751  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-47 2'  
Project: Ragin Cajun      Collection Date: 12/11/2023 9:50:00 AM  
Lab ID: 2312751-006      Matrix: SOIL      Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	12/19/2023 7:41:30 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/19/2023 7:41:30 PM
Surr: DNOP	102	69-147		%Rec	1	12/19/2023 7:41:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/20/2023 6:37:00 AM
Surr: BFB	106	15-244		%Rec	1	12/20/2023 6:37:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/20/2023 6:37:00 AM
Toluene	ND	0.049		mg/Kg	1	12/20/2023 6:37:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	12/20/2023 6:37:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	12/20/2023 6:37:00 AM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	12/20/2023 6:37:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	110	60		mg/Kg	20	12/19/2023 8:28:53 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312751  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-48 0'  
Project: Ragin Cajun      Collection Date: 12/11/2023 10:00:00 AM  
Lab ID: 2312751-007      Matrix: SOIL      Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/19/2023 8:05:43 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2023 8:05:43 PM
Surr: DNOP	104	69-147		%Rec	1	12/19/2023 8:05:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2023 6:59:00 AM
Surr: BFB	103	15-244		%Rec	1	12/20/2023 6:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/20/2023 6:59:00 AM
Toluene	ND	0.047		mg/Kg	1	12/20/2023 6:59:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2023 6:59:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/20/2023 6:59:00 AM
Surr: 4-Bromofluorobenzene	99.3	39.1-146		%Rec	1	12/20/2023 6:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	700	60		mg/Kg	20	12/19/2023 8:41:18 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-48 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 10:10:00 AM

Lab ID: 2312751-008

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/19/2023 8:29:46 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/19/2023 8:29:46 PM
Surr: DNOP	100	69-147		%Rec	1	12/19/2023 8:29:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2023 7:21:00 AM
Surr: BFB	97.7	15-244		%Rec	1	12/20/2023 7:21:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	12/20/2023 7:21:00 AM
Toluene	ND	0.047		mg/Kg	1	12/20/2023 7:21:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2023 7:21:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/20/2023 7:21:00 AM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	12/20/2023 7:21:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	ND	60		mg/Kg	20	12/19/2023 8:53:42 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2312751  
Date Reported: 1/2/2024

CLIENT: Vertex Resources Services, Inc.      Client Sample ID: BH23-49 0'  
Project: Ragin Cajun      Collection Date: 12/11/2023 10:20:00 AM  
Lab ID: 2312751-009      Matrix: SOIL      Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/19/2023 8:53:48 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2023 8:53:48 PM
Surr: DNOP	104	69-147		%Rec	1	12/19/2023 8:53:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/20/2023 7:43:00 AM
Surr: BFB	98.9	15-244		%Rec	1	12/20/2023 7:43:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	12/20/2023 7:43:00 AM
Toluene	ND	0.046		mg/Kg	1	12/20/2023 7:43:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	12/20/2023 7:43:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	12/20/2023 7:43:00 AM
Surr: 4-Bromofluorobenzene	97.5	39.1-146		%Rec	1	12/20/2023 7:43:00 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	840	60		mg/Kg	20	12/19/2023 9:06:07 PM

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

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

## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-49 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 10:30:00 AM

Lab ID: 2312751-010

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	0.085		mg/Kg	1	12/19/2023 12:13:04 PM
Motor Oil Range Organics (MRO)	ND	0.43		mg/Kg	1	12/19/2023 12:13:04 PM
Surr: DNOP	93.2	69-147		%Rec	1	12/19/2023 12:13:04 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/19/2023 4:43:33 PM
Surr: BFB	99.5	15-244		%Rec	1	12/19/2023 4:43:33 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/19/2023 4:43:33 PM
Toluene	ND	0.048		mg/Kg	1	12/19/2023 4:43:33 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/19/2023 4:43:33 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/19/2023 4:43:33 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	12/19/2023 4:43:33 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	ND	60		mg/Kg	20	12/19/2023 9:18:32 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-50 0'

Project: Ragin Cajun

Collection Date: 12/11/2023 10:40:00 AM

Lab ID: 2312751-011

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/19/2023 12:23:30 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/19/2023 12:23:30 PM
Surr: DNOP	76.0	69-147		%Rec	1	12/19/2023 12:23:30 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/19/2023 5:07:25 PM
Surr: BFB	97.7	15-244		%Rec	1	12/19/2023 5:07:25 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/19/2023 5:07:25 PM
Toluene	ND	0.048		mg/Kg	1	12/19/2023 5:07:25 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/19/2023 5:07:25 PM
Xylenes, Total	ND	0.096		mg/Kg	1	12/19/2023 5:07:25 PM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	12/19/2023 5:07:25 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	270	60		mg/Kg	20	12/19/2023 9:30:56 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-50 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 10:50:00 AM

Lab ID: 2312751-012

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	12/19/2023 12:33:59 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/19/2023 12:33:59 PM
Surr: DNOP	87.6	69-147		%Rec	1	12/19/2023 12:33:59 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/19/2023 5:31:10 PM
Surr: BFB	96.6	15-244		%Rec	1	12/19/2023 5:31:10 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.025		mg/Kg	1	12/19/2023 5:31:10 PM
Toluene	ND	0.050		mg/Kg	1	12/19/2023 5:31:10 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/19/2023 5:31:10 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/19/2023 5:31:10 PM
Surr: 4-Bromofluorobenzene	95.7	39.1-146		%Rec	1	12/19/2023 5:31:10 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	79	60		mg/Kg	20	12/19/2023 9:43:21 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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CLIENT: Vertex Resources Services, Inc.  
Project: Ragin Cajun  
Lab ID: 2312751-013

Client Sample ID: BH23-51 0'  
Collection Date: 12/11/2023 11:00:00 AM  
Received Date: 12/13/2023 7:50:00 AM

Matrix: SOIL

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	12/19/2023 12:44:33 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/19/2023 12:44:33 PM
Surr: DNOP	85.9	69-147		%Rec	1	12/19/2023 12:44:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/19/2023 5:54:58 PM
Surr: BFB	95.6	15-244		%Rec	1	12/19/2023 5:54:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	12/19/2023 5:54:58 PM
Toluene	ND	0.048		mg/Kg	1	12/19/2023 5:54:58 PM
Ethylbenzene	ND	0.048		mg/Kg	1	12/19/2023 5:54:58 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/19/2023 5:54:58 PM
Surr: 4-Bromofluorobenzene	94.8	39.1-146		%Rec	1	12/19/2023 5:54:58 PM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	ND	60		mg/Kg	20	12/19/2023 9:55:45 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-51 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 10:30:00 AM

Lab ID: 2312751-014

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/19/2023 12:55:04 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2023 12:55:04 PM
Surr: DNOP	91.7	69-147		%Rec	1	12/19/2023 12:55:04 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/19/2023 6:18:45 PM
Surr: BFB	96.3	15-244		%Rec	1	12/19/2023 6:18:45 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.025		mg/Kg	1	12/19/2023 6:18:45 PM
Toluene	ND	0.049		mg/Kg	1	12/19/2023 6:18:45 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/19/2023 6:18:45 PM
Xylenes, Total	ND	0.099		mg/Kg	1	12/19/2023 6:18:45 PM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	12/19/2023 6:18:45 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	ND	60		mg/Kg	20	12/19/2023 10:32:59 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-52 0'

Project: Ragin Cajun

Collection Date: 12/11/2023 11:20:00 AM

Lab ID: 2312751-015

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	8.3		mg/Kg	1	12/19/2023 1:05:27 PM
Motor Oil Range Organics (MRO)	ND	41		mg/Kg	1	12/19/2023 1:05:27 PM
Surr: DNOP	85.0	69-147		%Rec	1	12/19/2023 1:05:27 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/19/2023 6:42:42 PM
Surr: BFB	98.1	15-244		%Rec	1	12/19/2023 6:42:42 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	12/19/2023 6:42:42 PM
Toluene	ND	0.047		mg/Kg	1	12/19/2023 6:42:42 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/19/2023 6:42:42 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/19/2023 6:42:42 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	12/19/2023 6:42:42 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	ND	60		mg/Kg	20	12/19/2023 10:45:23 PM

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

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

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## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-52 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 11:10:00 AM

Lab ID: 2312751-016

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	12/19/2023 1:16:03 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	12/19/2023 1:16:03 PM
Surr: DNOP	89.1	69-147		%Rec	1	12/19/2023 1:16:03 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/19/2023 7:06:28 PM
Surr: BFB	96.8	15-244		%Rec	1	12/19/2023 7:06:28 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/19/2023 7:06:28 PM
Toluene	ND	0.049		mg/Kg	1	12/19/2023 7:06:28 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/19/2023 7:06:28 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/19/2023 7:06:28 PM
Surr: 4-Bromofluorobenzene	95.8	39.1-146		%Rec	1	12/19/2023 7:06:28 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	ND	60		mg/Kg	20	12/19/2023 8:42:37 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-53 0'

Project: Ragin Cajun

Collection Date: 12/11/2023 11:30:00 AM

Lab ID: 2312751-017

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	12/19/2023 1:26:35 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	12/19/2023 1:26:35 PM
Surr: DNOP	86.6	69-147		%Rec	1	12/19/2023 1:26:35 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/19/2023 7:30:34 PM
Surr: BFB	95.4	15-244		%Rec	1	12/19/2023 7:30:34 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.024		mg/Kg	1	12/19/2023 7:30:34 PM
Toluene	ND	0.047		mg/Kg	1	12/19/2023 7:30:34 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/19/2023 7:30:34 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/19/2023 7:30:34 PM
Surr: 4-Bromofluorobenzene	94.9	39.1-146		%Rec	1	12/19/2023 7:30:34 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	92	60		mg/Kg	20	12/19/2023 9:28:03 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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## Analytical Report

Lab Order 2312751

Date Reported: 1/2/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-53 2'

Project: Ragin Cajun

Collection Date: 12/11/2023 11:40:00 AM

Lab ID: 2312751-018

Matrix: SOIL

Received Date: 12/13/2023 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: <b>DGH</b>
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/19/2023 1:37:08 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/19/2023 1:37:08 PM
Surr: DNOP	100	69-147		%Rec	1	12/19/2023 1:37:08 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>JJP</b>
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	12/19/2023 8:18:37 PM
Surr: BFB	95.9	15-244		%Rec	1	12/19/2023 8:18:37 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: <b>JJP</b>
Benzene	ND	0.023		mg/Kg	1	12/19/2023 8:18:37 PM
Toluene	ND	0.046		mg/Kg	1	12/19/2023 8:18:37 PM
Ethylbenzene	ND	0.046		mg/Kg	1	12/19/2023 8:18:37 PM
Xylenes, Total	ND	0.092		mg/Kg	1	12/19/2023 8:18:37 PM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	12/19/2023 8:18:37 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>KCB</b>
Chloride	ND	60		mg/Kg	20	12/19/2023 10:13:31 PM

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

<b>Qualifiers:</b>	*	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312751

02-Jan-24

**Client:** Vertex Resources Services, Inc.**Project:** Ragin Cajun

Sample ID: <b>MB-79502</b>	SampType: <b>mblk</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79502</b>		RunNo: <b>101966</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762264</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-79502</b>	SampType: <b>lcs</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79502</b>		RunNo: <b>101966</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762265</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.4	90	110			

Sample ID: <b>MB-79505</b>	SampType: <b>mblk</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79505</b>		RunNo: <b>101979</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762727</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-79505</b>	SampType: <b>lcs</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79505</b>		RunNo: <b>101979</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762728</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.5	90	110			

**Qualifiers:**

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of 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

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## QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312751

02-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun

Sample ID: <b>MB-79490</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79490</b>		RunNo: <b>101944</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760434</b>		Units: <b>mg/Kg</b>					
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	7.9		10.00		78.7	69	147			

Sample ID: <b>LCS-79490</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79490</b>		RunNo: <b>101944</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760435</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.0	61.9	130			
Surr: DNOP	4.3		5.000		86.9	69	147			

Sample ID: <b>LCS-79486</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79486</b>		RunNo: <b>101937</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760771</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.9	61.9	130			
Surr: DNOP	4.9		5.000		97.5	69	147			

Sample ID: <b>MB-79486</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79486</b>		RunNo: <b>101937</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760772</b>		Units: <b>mg/Kg</b>					
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	8.6		10.00		86.1	69	147			

Sample ID: <b>2312751-009AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015M/D: Diesel Range Organics</b>							
Client ID: <b>BH23-49 0'</b>	Batch ID: <b>79490</b>		RunNo: <b>101944</b>							
Prep Date: <b>12/19/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760831</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.6	47.85	0	94.8	54.2	135			
Surr: DNOP	4.1		4.785		84.7	69	147			

## Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative 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#: 231275102-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun

Sample ID: 2312751-009AMSD		SampType: MSD			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: BH23-49 0'		Batch ID: 79490			RunNo: 101944					
Prep Date: 12/19/2023		Analysis Date: 12/19/2023			SeqNo: 3760832		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.3	46.47	0	96.2	54.2	135	1.53	29.2	
Surr: DNOP	4.0		4.647		86.8	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 Quantitative 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#: 2312751

02-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun

Sample ID: <b>ics-79476</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79476</b>			RunNo: <b>101954</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>			SeqNo: <b>3760774</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.2	70	130			
Surr: BFB	2100		1000		207	15	244			

Sample ID: <b>mb-79476</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79476</b>			RunNo: <b>101954</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>			SeqNo: <b>3760775</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		100	15	244			

Sample ID: <b>2312751-010ams</b>	SampType: <b>MS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>BH23-49 2'</b>	Batch ID: <b>79476</b>			RunNo: <b>101954</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/20/2023</b>			SeqNo: <b>3761457</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	24.06	0	101	70	130			
Surr: BFB	2100		962.5		217	15	244			

Sample ID: <b>2312751-010amsd</b>	SampType: <b>MSD</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>BH23-49 2'</b>	Batch ID: <b>79476</b>			RunNo: <b>101954</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/20/2023</b>			SeqNo: <b>3761459</b>		Units: <b>mg/Kg</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	24.06	0	94.5	70	130	6.83	20	
Surr: BFB	2000		962.5		205	15	244	0	0	

Sample ID: <b>ics-79453</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>79453</b>			RunNo: <b>101963</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>			SeqNo: <b>3762014</b>		Units: <b>%Rec</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2100		1000		215	15	244			

Sample ID: <b>mb-79453</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBS</b>	Batch ID: <b>79453</b>			RunNo: <b>101963</b>						
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>			SeqNo: <b>3762015</b>		Units: <b>%Rec</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		101	15	244			

### 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 Quantitative 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#: 2312751  
02-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun

Sample ID: <b>lcs-79469</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79469</b>		RunNo: <b>101963</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762038</b>		Units: <b>mg/Kg</b>					
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	2200		1000		223	15	244			

Sample ID: <b>mb-79469</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79469</b>		RunNo: <b>101963</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762039</b>		Units: <b>mg/Kg</b>					
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		99.0	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 Quantitative 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#: 2312751

02-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun

Sample ID: <b>LCS-79476</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79476</b>		RunNo: <b>101954</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760802</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	91.8	70	130			
Toluene	0.94	0.050	1.000	0	93.8	70	130			
Ethylbenzene	0.95	0.050	1.000	0	95.0	70	130			
Xylenes, Total	2.9	0.10	3.000	0	96.9	70	130			
Surr: 4-Bromofluorobenzene	0.97		1.000		97.1	39.1	146			

Sample ID: <b>mb-79476</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79476</b>		RunNo: <b>101954</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3760803</b>		Units: <b>mg/Kg</b>					
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	0.97		1.000		97.4	39.1	146			

Sample ID: <b>2312751-011ams</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>BH23-50 0'</b>	Batch ID: <b>79476</b>		RunNo: <b>101954</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/20/2023</b>		SeqNo: <b>3761491</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9615	0	104	70	130			
Toluene	1.0	0.048	0.9615	0	106	70	130			
Ethylbenzene	1.0	0.048	0.9615	0	109	70	130			
Xylenes, Total	3.2	0.096	2.885	0	110	70	130			
Surr: 4-Bromofluorobenzene	0.95		0.9615		99.1	39.1	146			

Sample ID: <b>2312751-011AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>BH23-50 0'</b>	Batch ID: <b>79476</b>		RunNo: <b>101954</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/20/2023</b>		SeqNo: <b>3761492</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.024	0.9662	0	103	70	130	0.988	20	
Toluene	1.0	0.048	0.9662	0	105	70	130	1.39	20	
Ethylbenzene	1.0	0.048	0.9662	0	106	70	130	1.98	20	
Xylenes, Total	3.1	0.097	2.899	0	107	70	130	1.93	20	
Surr: 4-Bromofluorobenzene	0.94		0.9662		97.2	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 Quantitative 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

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 2312751

02-Jan-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun

Sample ID: <b>Ics-79453</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79453</b>		RunNo: <b>101963</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762069</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		98.1	39.1	146			

Sample ID: <b>mb-79453</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79453</b>		RunNo: <b>101963</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762070</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.97		1.000		97.1	39.1	146			

Sample ID: <b>Ics-79469</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>79469</b>		RunNo: <b>101963</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762093</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.2	70	130			
Toluene	1.0	0.050	1.000	0	100	70	130			
Ethylbenzene	1.0	0.050	1.000	0	103	70	130			
Xylenes, Total	3.1	0.10	3.000	0	103	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.6	39.1	146			

Sample ID: <b>mb-79469</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8021B: Volatiles</b>							
Client ID: <b>PBS</b>	Batch ID: <b>79469</b>		RunNo: <b>101963</b>							
Prep Date: <b>12/18/2023</b>	Analysis Date: <b>12/19/2023</b>		SeqNo: <b>3762094</b>		Units: <b>mg/Kg</b>					
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	0.97		1.000		96.6	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 Quantitative 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

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Environment Testin...

Eurofins Environment Testing South  
Central, LLC4901 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: 2312751

RcptNo: 1

Received By: Tracy Casarrubias

12/13/2023 7:50:00 AM

Completed By: Tracy Casarrubias

12/13/2023 10:26:33 AM

Reviewed By:

7/12/13/23

**Chain of Custody**

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

**Log In**

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:

(&lt;2 or &gt;12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: Em 12/13/23**Special Handling (if applicable)**

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

Mailing address and phone number are missing on COC- TMC 12/13/23

16. Additional remarks:

**17. Cooler Information**

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.0	Good	Yes	Yogi		

Chain of Custody



Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300  
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334  
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

2812751

Work Order No: 21146113 m 12/13/23

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Project Manager:	Kent Stallings	Bill to: (if different)	Devon (Dale Woodall)
Company Name:	Vertex	Company Name:	
Address:	of file	Address:	
City, State ZIP:		City, State ZIP:	
Phone:		Email:	and balmanza@vertex.ca

Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting:	Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables:	EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:		Turn Around		Pres. Code	ANALYSIS REQUEST																Preservative Codes		
Project Number:	23E-02065	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Rush																		None: NO	DI Water: H <sub>2</sub> O	
Project Location:		Due Date:	5/20/24																	Cool: Cool	MeOH: Me		
Sampler's Name:	B. Amanza	TAT starts the day received by the lab, if received by 4:30pm																			HCL: HC	HNO <sub>3</sub> : HN	
P.O. #:		Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wet Ice:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																	H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>	NaOH: Na
SAMPLE RECEIPT		Samples Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Thermometer ID:	4091																	H <sub>3</sub> PO <sub>4</sub> : HP	
Cooler Custody Seals:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	N/A	Correction Factor:	10.1																	NaHSO <sub>4</sub> : NABIS	
Sample Custody Seals:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	N/A	Temperature Reading:	5.9																	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub>	
Total Containers:		1		Corrected Temperature:	10.0																	Zn Acetate+NaOH: Zn	
																						NaOH+Ascorbic Acid: SAPC	
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Sample Comments															
BH23-45	Soil	12.11.23	0900	0'	Grab	402		001															
BH23-45			0910	2'				002															
BH23-46			0920	0'				003															
BH23-46			0930	2'				004															
BH23-47			0940	0'				005															
BH23-47			0950	2'				006															
BH23-48			1000	0'				007															
BH23-48			1010	2'				008															
BH23-49			1020	0'				009															
BH23-49			1030	2'				010															

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> Na Sr Ti Sn U V Zn  
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Prenda Amanza					12.11.23 1700

Chain of Custody

2312751  
Work Order No: 2146173 tmc 12/13/23



Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300  
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334  
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Project Manager: Kent Stallings  
Company Name: Vertex  
Address: on file  
City, State ZIP:   
Phone:   
Bill to: (if different) Dexon (Dale Woodall)  
Company Name:   
Address:   
City, State ZIP:   
Email: Kstallings@vertex.co, balmanza@vertex.co

Work Order Comments  
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐  
State of Project:   
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐  
Deliverables: EDD ☐ ADAPT ☐ Other:   
www.xenco.com Page 2 of 2

ANALYSIS REQUEST										Preservative Codes	
Project Name:	Project Number:	Project Location:	Sampler's Name:	P.O. #:	Turn Around <input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Due Date:	Wet Ice:	Temp Blank:	Thermometer ID:	None: NO	DI Water: H <sub>2</sub> O
					Due Date:	TAT starts the day received by the lab, if received by 4:30pm	Yes No	Yes No	Correction Factor:	Cool: Cool	MeOH: Me
					Due Date:		Yes No	Yes No	Temperature Reading:	HCL: HC	HNO <sub>3</sub> : HN
					Due Date:		Yes No	Yes No	Corrected Temperature:	H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub>	NaOH: Na
					Due Date:		Yes No	Yes No		H <sub>3</sub> PO <sub>4</sub> : HP	
					Due Date:		Yes No	Yes No		NaHSO <sub>4</sub> : NABIS	
					Due Date:		Yes No	Yes No		Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> : NaSO <sub>3</sub>	
					Due Date:		Yes No	Yes No		Zn Acetate+NaOH: Zn	
					Due Date:		Yes No	Yes No		NaOH+Ascorbic Acid: SAPC	
CL TRI BTEX											
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Sample Comments				
BH23-S0	Soil	12.11.23	1040	0'	Grab	402	011				
BH23-S0			1050	2'			012				
BH23-S1			1100	0'			013				
BH23-S1			1030	2'			014				
BH23-S2			1120	0'			015				
BH23-S2			1110	2'			016				
BH23-S3			1130	0'			017				
BH23-S3			1140	2'			018				

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO<sub>2</sub> Na Sr Ti Sn U V Zn  
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Brenda Almanza		12.11.23, 1700
		12/13/23 7:50
		corner



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](http://www.hallenvironmental.com)

January 11, 2024

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Ragin Cajun 12 Fed 003H

OrderNo.: 2401258

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 1/6/2024 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 2401258

Date Reported: 1/11/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH24-19 4'

Project: Ragin Cajun 12 Fed 003H

Collection Date: 1/3/2024 10:37:00 AM

Lab ID: 2401258-001

Matrix: MEOH (SOIL)

Received Date: 1/6/2024 8:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	290	9.5		mg/Kg	1	1/8/2024 1:15:27 PM
Motor Oil Range Organics (MRO)	180	47		mg/Kg	1	1/8/2024 1:15:27 PM
Surr: DNOP	104	69-147		%Rec	1	1/8/2024 1:15:27 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	3.1		mg/Kg	1	1/8/2024 11:48:09 AM
Surr: BFB	100	15-244		%Rec	1	1/8/2024 11:48:09 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.016		mg/Kg	1	1/8/2024 11:48:09 AM
Toluene	ND	0.031		mg/Kg	1	1/8/2024 11:48:09 AM
Ethylbenzene	ND	0.031		mg/Kg	1	1/8/2024 11:48:09 AM
Xylenes, Total	ND	0.062		mg/Kg	1	1/8/2024 11:48:09 AM
Surr: 4-Bromofluorobenzene	93.0	39.1-146		%Rec	1	1/8/2024 11:48:09 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KCB
Chloride	160	59		mg/Kg	20	1/8/2024 2:17:13 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 Quantitative 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#: 2401258

11-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H

Sample ID: MB-79773	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 79773	RunNo: 102317								
Prep Date: 1/8/2024	Analysis Date: 1/8/2024	SeqNo: 3778296 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-79773	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 79773	RunNo: 102317								
Prep Date: 1/8/2024	Analysis Date: 1/8/2024	SeqNo: 3778297 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.0	90	110			

Qualifiers:

\*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

% Recovery outside of 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#: 2401258

11-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H

Sample ID: LCS-79768	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 79768	RunNo: 102322								
Prep Date: 1/8/2024	Analysis Date: 1/8/2024	SeqNo: 3778535	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.9	61.9	130			
Surr: DNOP	4.7		5.000		94.9	69	147			

Sample ID: MB-79768	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 79768	RunNo: 102322								
Prep Date: 1/8/2024	Analysis Date: 1/8/2024	SeqNo: 3778539	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	9.2		10.00		91.7	69	147			

Qualifiers:

\*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative 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#: 2401258

11-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H

Sample ID: 2.5ug gro lcs	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: GS102299	RunNo: 102299								
Prep Date:	Analysis Date: 1/8/2024	SeqNo: 3777406 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	70	130			
Surr: BFB	2100		1000		215	15	244			

Sample ID: mb	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: GS102299	RunNo: 102299								
Prep Date:	Analysis Date: 1/8/2024	SeqNo: 3777407 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		100	15	244			

Sample ID: 2401258-001ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH24-19 4'	Batch ID: GS102299	RunNo: 102299								
Prep Date:	Analysis Date: 1/8/2024	SeqNo: 3777631 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.1	15.57	0	107	70	130			
Surr: BFB	1300		622.7		214	15	244			

Sample ID: 2401258-001amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH24-19 4'	Batch ID: GS102299	RunNo: 102299								
Prep Date:	Analysis Date: 1/8/2024	SeqNo: 3777632 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.1	15.57	0	110	70	130	3.24	20	
Surr: BFB	1400		622.7		218	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 Quantitative 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#: 2401258  
11-Jan-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Fed 003H

Sample ID: 100ng btex lcs	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: BS102299	RunNo: 102299								
Prep Date:	Analysis Date: 1/8/2024	SeqNo: 3777412 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.5	70	130			
Toluene	0.92	0.050	1.000	0	91.9	70	130			
Ethylbenzene	0.93	0.050	1.000	0	92.6	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.7	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.1	39.1	146			

Sample ID: mb	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: BS102299	RunNo: 102299								
Prep Date:	Analysis Date: 1/8/2024	SeqNo: 3777413 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	0.92		1.000		92.2	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 Quantitative 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



Environment Testin

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: **2401258** RcptNo: **1**

Received By: **Cheyenne Cason** 1/6/2024 8:35:00 AM *Chnl*

Completed By: **Cheyenne Cason** 1/6/2024 8:47:56 AM *Chnl*

Reviewed By: *SCM 1/8/24*

### 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? Yes ☒ No ☐  
(Note discrepancies on chain of custody)
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? Yes ☒ No ☐  
(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: *SCM 1/6/24*

### 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	0.6	Good	Not Present	Yogi		

## Chain-of-Custody Record

Client: Devon / 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☒ Rush2 days

Project Name:

Ragin Cajun 12 Fed #0034

Project #:

23E-02965

Project Manager:

Kent Stalligs

Sampler:

Deusavan Costafillo

On Ice:

☒ Yes☐ NoYog.# of Coolers: 1Cooler Temp (including CF): 0.6-0 = 0.6 (°C)

Date

Time

Matrix

Sample Name

1.03.24 10:37 Soil BH24-19 4'

Container

Type and #

42

Preservative

Type

ice

HEAL No.

2401258001

## Analysis Request

BTX / MTBE / TMBs (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<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

Date:

Time:

Relinquished by:

Relinquished by:

Received by:

Via:

Date

Time

Remarks:

Workorder: 21146173

Date

Time

Received by:

Via:

Relinquished by:

Relinquished by:

Date:

Time:

Relinquished by:

Relinquished by:

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Relinquished by:

Date

Time

Received by:

Via:

Relinquished by:



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](http://www.hallenvironmental.com)

February 15, 2024

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Ragin Cajun 12 Federal 003H

OrderNo.: 2402410

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 5 sample(s) on 2/8/2024 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2402410

Date Reported: 2/15/2024

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BH23-21 6.0'  
Project: Ragin Cajun 12 Federal 003H Collection Date: 2/6/2024 12:10:00 PM  
Lab ID: 2402410-001 Matrix: SOIL Received Date: 2/8/2024 7:30:00 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	2/8/2024 7:22:39 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/8/2024 7:22:39 PM
Surr: DNOP	82.0	61.2-134		%Rec	1	2/8/2024 7:22:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/10/2024 6:51:25 AM
Surr: BFB	94.2	15-244		%Rec	1	2/10/2024 6:51:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	2/10/2024 6:51:25 AM
Toluene	ND	0.050		mg/Kg	1	2/10/2024 6:51:25 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/10/2024 6:51:25 AM
Xylenes, Total	ND	0.10		mg/Kg	1	2/10/2024 6:51:25 AM
Surr: 4-Bromofluorobenzene	80.1	39.1-146		%Rec	1	2/10/2024 6:51:25 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	6700	300		mg/Kg	100	2/14/2024 2:01:36 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

## Analytical Report

Lab Order 2402410

Date Reported: 2/15/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-16 6.0'

Project: Ragin Cajun 12 Federal 003H

Collection Date: 2/6/2024 1:05:00 PM

Lab ID: 2402410-002

Matrix: SOIL

Received Date: 2/8/2024 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: JKU
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/8/2024 7:34:25 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/8/2024 7:34:25 PM
Surr: DNOP	81.5	61.2-134		%Rec	1	2/8/2024 7:34:25 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/10/2024 7:14:50 AM
Surr: BFB	98.0	15-244		%Rec	1	2/10/2024 7:14:50 AM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	2/10/2024 7:14:50 AM
Toluene	ND	0.049		mg/Kg	1	2/10/2024 7:14:50 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/10/2024 7:14:50 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/10/2024 7:14:50 AM
Surr: 4-Bromofluorobenzene	84.6	39.1-146		%Rec	1	2/10/2024 7:14:50 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SNS
Chloride	720	60		mg/Kg	20	2/12/2024 12:22:05 PM

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

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

Page 2 of 9

Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
Lab Order 2402410  
Date Reported: 2/15/2024

CLIENT: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Federal 003H  
Lab ID: 2402410-003

Client Sample ID: BH23-21 8.0'  
Collection Date: 2/6/2024 1:20:00 PM  
Received Date: 2/8/2024 7:30:00 AM

Matrix: SOIL

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	2/8/2024 7:46:08 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/8/2024 7:46:08 PM
Surr: DNOP	91.1	61.2-134		%Rec	1	2/8/2024 7:46:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/10/2024 7:38:16 AM
Surr: BFB	100	15-244		%Rec	1	2/10/2024 7:38:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	2/10/2024 7:38:16 AM
Toluene	ND	0.048		mg/Kg	1	2/10/2024 7:38:16 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/10/2024 7:38:16 AM
Xylenes, Total	ND	0.097		mg/Kg	1	2/10/2024 7:38:16 AM
Surr: 4-Bromofluorobenzene	82.6	39.1-146		%Rec	1	2/10/2024 7:38:16 AM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	3300	150		mg/Kg	50	2/14/2024 2:13:56 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2402410

Date Reported: 2/15/2024

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BH23-16 7.0'  
Project: Ragin Cajun 12 Federal 003H Collection Date: 2/6/2024 1:45:00 PM  
Lab ID: 2402410-004 Matrix: SOIL Received Date: 2/8/2024 7:30:00 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	2/8/2024 7:57:57 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/8/2024 7:57:57 PM
Surr: DNOP	79.5	61.2-134		%Rec	1	2/8/2024 7:57:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/10/2024 8:01:47 AM
Surr: BFB	98.5	15-244		%Rec	1	2/10/2024 8:01:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	2/10/2024 8:01:47 AM
Toluene	ND	0.050		mg/Kg	1	2/10/2024 8:01:47 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/10/2024 8:01:47 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/10/2024 8:01:47 AM
Surr: 4-Bromofluorobenzene	84.9	39.1-146		%Rec	1	2/10/2024 8:01:47 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	100	60		mg/Kg	20	2/12/2024 12:46:46 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2402410

Date Reported: 2/15/2024

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BH23-21 10.0'  
Project: Ragin Cajun 12 Federal 003H Collection Date: 2/6/2024 2:25:00 PM  
Lab ID: 2402410-005 Matrix: SOIL Received Date: 2/8/2024 7:30:00 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	2/8/2024 8:09:41 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/8/2024 8:09:41 PM
Surr: DNOP	77.6	61.2-134		%Rec	1	2/8/2024 8:09:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/10/2024 8:25:36 AM
Surr: BFB	98.2	15-244		%Rec	1	2/10/2024 8:25:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	2/10/2024 8:25:36 AM
Toluene	ND	0.048		mg/Kg	1	2/10/2024 8:25:36 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/10/2024 8:25:36 AM
Xylenes, Total	ND	0.097		mg/Kg	1	2/10/2024 8:25:36 AM
Surr: 4-Bromofluorobenzene	84.5	39.1-146		%Rec	1	2/10/2024 8:25:36 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	130	60		mg/Kg	20	2/12/2024 12:59:07 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative 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#: 2402410

15-Feb-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Federal 003H

Sample ID: MB-80392		SampType: MBLK		TestCode: EPA Method 300.0: Anions						
Client ID: PBS		Batch ID: 80392		RunNo: 103039						
Prep Date: 2/12/2024		Analysis Date: 2/12/2024		SeqNo: 3808663			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: <b>LCS-80392</b>		SampType: <b>LCS</b>			TestCode: <b>EPA Method 300.0: Anions</b>					
Client ID: <b>LCSS</b>		Batch ID: <b>80392</b>			RunNo: <b>103039</b>					
Prep Date: <b>2/12/2024</b>		Analysis Date: <b>2/12/2024</b>			SeqNo: <b>3808664</b>		Units: <b>mg/Kg</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.4	90	110			

Qualifiers:

\*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

% Recovery outside of 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#: 2402410

15-Feb-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Federal 003H

Sample ID: MB-80343	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 80343	RunNo: 102974								
Prep Date: 2/8/2024	Analysis Date: 2/8/2024	SeqNo: 3805739		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		82.3	61.2	134			

Sample ID: LCS-80343	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 80343	RunNo: 102974								
Prep Date: 2/8/2024	Analysis Date: 2/8/2024	SeqNo: 3805740		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	79.5	59.7	135			
Surr: DNOP	4.1		5.000		81.8	61.2	134			

Qualifiers:

\*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

% Recovery outside of 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#: 2402410

15-Feb-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Federal 003H

Sample ID: ics-80341	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 80341	RunNo: 102999								
Prep Date: 2/8/2024	Analysis Date: 2/9/2024	SeqNo: 3807563			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	70	130			
Surr: BFB	2100		1000		206	15	244			

Sample ID: mb-80341	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 80341	RunNo: 102999								
Prep Date: 2/8/2024	Analysis Date: 2/9/2024	SeqNo: 3807565			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	950		1000		95.0	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 Quantitative 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#: 2402410

15-Feb-24

Client: Vertex Resources Services, Inc.  
Project: Ragin Cajun 12 Federal 003H

Sample ID: LCS-80341	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 80341	RunNo: 102999								
Prep Date: 2/8/2024	Analysis Date: 2/9/2024	SeqNo: 3807616	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.025	1.000	0	83.7	70	130			
Toluene	0.85	0.050	1.000	0	85.4	70	130			
Ethylbenzene	0.87	0.050	1.000	0	86.9	70	130			
Xylenes, Total	2.6	0.10	3.000	0	87.4	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		86.4	39.1	146			

Sample ID: mb-80341	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 80341	RunNo: 102999								
Prep Date: 2/8/2024	Analysis Date: 2/9/2024	SeqNo: 3807618	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	0.84		1.000		83.7	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 Quantitative 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



Environment Testin

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: 2402410 RcptNo: 1

Received By: Tracy Casarrubias 2/8/2024 7:30:00 AM

Completed By: Desiree Dominguez 2/8/2024 8:16:54 AM

Reviewed By: 2/8/24

## 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? Yes ☒ No ☐  
(Note discrepancies on chain of custody)
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? Yes ☒ No ☐  
(If no, notify customer for authorization.)

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: ju 2/8/24

## 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	5.8	Good	Not Present	Morty		





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](http://www.hallenvironmental.com)

February 28, 2024

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Ragin Cajun 12 Federal 3

OrderNo.: 2402732

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 2 sample(s) on 2/15/2024 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2402732

Date Reported: 2/28/2024

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BH24-54 0'  
Project: Ragin Cajun 12 Federal 3 Collection Date: 2/13/2024 10:25:00 AM  
Lab ID: 2402732-001 Matrix: SOIL Received Date: 2/15/2024 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/22/2024 3:00:23 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/22/2024 3:00:23 AM
Surr: DNOP	104	61.2-134		%Rec	1	2/22/2024 3:00:23 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/19/2024 4:18:39 PM
Surr: BFB	102	15-244		%Rec	1	2/19/2024 4:18:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	2/19/2024 4:18:39 PM
Toluene	ND	0.047		mg/Kg	1	2/19/2024 4:18:39 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/19/2024 4:18:39 PM
Xylenes, Total	ND	0.095		mg/Kg	1	2/19/2024 4:18:39 PM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	2/19/2024 4:18:39 PM
EPA METHOD 300.0: ANIONS						Analyst: KCB
Chloride	170	60		mg/Kg	20	2/19/2024 7:17:56 PM

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

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

## Analytical Report

Lab Order 2402732

Date Reported: 2/28/2024

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH24-54 2'

Project: Ragin Cajun 12 Federal 3

Collection Date: 2/13/2024 10:30:00 AM

Lab ID: 2402732-002

Matrix: SOIL

Received Date: 2/15/2024 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/22/2024 4:10:42 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/22/2024 4:10:42 AM
Surr: DNOP	101	61.2-134		%Rec	1	2/22/2024 4:10:42 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/19/2024 4:42:31 PM
Surr: BFB	106	15-244		%Rec	1	2/19/2024 4:42:31 PM
<b>EPA METHOD 8021B: VOLATILES</b>						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	2/19/2024 4:42:31 PM
Toluene	ND	0.050		mg/Kg	1	2/19/2024 4:42:31 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/19/2024 4:42:31 PM
Xylenes, Total	ND	0.10		mg/Kg	1	2/19/2024 4:42:31 PM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	2/19/2024 4:42:31 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KCB
Chloride	ND	60		mg/Kg	20	2/19/2024 7:30:17 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 Quantitative 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#: 2402732

28-Feb-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Federal 3

Sample ID: MB-80525	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 80525	RunNo: 103186								
Prep Date: 2/19/2024	Analysis Date: 2/19/2024	SeqNo: 3816035		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-80525	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 80525	RunNo: 103186								
Prep Date: 2/19/2024	Analysis Date: 2/19/2024	SeqNo: 3816036		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.0	90	110			

- Qualifiers:
- \*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

% Recovery outside of 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#: 2402732

28-Feb-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Federal 3

Sample ID: MB-80516	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 80516	RunNo: 103229								
Prep Date: 2/19/2024	Analysis Date: 2/21/2024	SeqNo: 3818229			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	9.5		10.00		95.0	61.2	134			

Sample ID: LCS-80516	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 80516	RunNo: 103229								
Prep Date: 2/19/2024	Analysis Date: 2/21/2024	SeqNo: 3818230			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	118	59.7	135			
Surr: DNOP	5.8		5.000		117	61.2	134			

Sample ID: 2402732-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH24-54 0'	Batch ID: 80516	RunNo: 103229								
Prep Date: 2/19/2024	Analysis Date: 2/22/2024	SeqNo: 3818260			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.3	46.47	0	104	43.7	136			
Surr: DNOP	4.8		4.647		103	61.2	134			

Sample ID: 2402732-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH24-54 0'	Batch ID: 80516	RunNo: 103229								
Prep Date: 2/19/2024	Analysis Date: 2/22/2024	SeqNo: 3818261			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.5	47.66	0	107	43.7	136	5.46	31.3	
Surr: DNOP	5.0		4.766		105	61.2	134	0	0	

## 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 Quantitative 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#: 2402732

28-Feb-24

**Client:** Vertex Resources Services, Inc.**Project:** Ragin Cajun 12 Federal 3

Sample ID: <b>ics-80496</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>80496</b>		RunNo: <b>103165</b>							
Prep Date: <b>2/16/2024</b>	Analysis Date: <b>2/19/2024</b>		SeqNo: <b>3815378</b>		Units: <b>mg/Kg</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.3	70	130			
Surr: BFB	2000		1000		203	15	244			

Sample ID: <b>mb-80496</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>80496</b>		RunNo: <b>103165</b>							
Prep Date: <b>2/16/2024</b>	Analysis Date: <b>2/19/2024</b>		SeqNo: <b>3815379</b>		Units: <b>mg/Kg</b>					
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		98.8	15	244			

Sample ID: <b>ics-80487</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>80487</b>		RunNo: <b>103221</b>							
Prep Date: <b>2/16/2024</b>	Analysis Date: <b>2/20/2024</b>		SeqNo: <b>3816956</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2300		1000		228	15	244			

Sample ID: <b>mb-80487</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBS</b>	Batch ID: <b>80487</b>		RunNo: <b>103221</b>							
Prep Date: <b>2/16/2024</b>	Analysis Date: <b>2/20/2024</b>		SeqNo: <b>3816957</b>		Units: <b>%Rec</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		110	15	244			

**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 Quantitative 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#: 2402732

28-Feb-24

Client: Vertex Resources Services, Inc.

Project: Ragin Cajun 12 Federal 3

Sample ID: LCS-80496	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 80496	RunNo: 103165								
Prep Date: 2/16/2024	Analysis Date: 2/19/2024	SeqNo: 3815403	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.6	70	130			
Toluene	0.96	0.050	1.000	0	95.6	70	130			
Ethylbenzene	0.97	0.050	1.000	0	96.6	70	130			
Xylenes, Total	2.9	0.10	3.000	0	97.4	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	39.1	146			

Sample ID: mb-80496	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 80496	RunNo: 103165								
Prep Date: 2/16/2024	Analysis Date: 2/19/2024	SeqNo: 3815404	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		101	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 Quantitative Limit

S

% Recovery outside of standard limits. If undiluted results may be estimated.

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

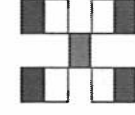
P

Sample pH Not In Range

RL

Reporting Limit





## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]



Environment Testing

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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Chad Hensley  
Vertex  
3101 Boyd Dr  
Carlsbad, New Mexico 88220

Generated 8/16/2024 2:58:52 PM

## JOB DESCRIPTION

Ragin Cajun 12 Federal 2

## JOB NUMBER

885-9573-1

Eurofins Albuquerque  
4901 Hawkins NE  
Albuquerque NM 87109

# 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



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

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Laboratory Job ID: 885-9573-1

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Definitions/Glossary

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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  
Project: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

**Job ID: 885-9573-1**

**Eurofins Albuquerque**

### Job Narrative 885-9573-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 8/9/2024 8:15 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 2.6°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 samples were outside control limits: WS24-01@0-3' (885-9573-11), (885-9573-A-11-C MS) and (885-9573-A-11-D MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. The low surrogate recovery is confirmed by low surrogate recovery in the MS and MSD.

Method 8015D\_DRO: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 885-10121 and analytical batch 885-10172 recovered outside control limits for the following analytes: Diesel Range Organics [C10-C28]. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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.

Eurofins Albuquerque

## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-01@3'

Lab Sample ID: 885-9573-1

Date Collected: 08/06/24 10:04

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0	mg/Kg		08/12/24 08:43	08/14/24 20:12	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		35 - 166			08/12/24 08:43	08/14/24 20:12	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		08/12/24 08:43	08/14/24 20:12	1
Ethylbenzene	ND		0.050	mg/Kg		08/12/24 08:43	08/14/24 20:12	1
Toluene	ND		0.050	mg/Kg		08/12/24 08:43	08/14/24 20:12	1
Xylenes, Total	ND		0.10	mg/Kg		08/12/24 08:43	08/14/24 20:12	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		48 - 145			08/12/24 08:43	08/14/24 20:12	1

## Method: SW846 8015M/D - 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		08/12/24 13:30	08/13/24 17:53	1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		08/12/24 13:30	08/13/24 17:53	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	74		62 - 134			08/12/24 13:30	08/13/24 17:53	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60	mg/Kg		08/13/24 09:35	08/13/24 15:27	20

Eurofins Albuquerque

## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-02@2'

Lab Sample ID: 885-9573-2

Date Collected: 08/06/24 10:20

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0	mg/Kg		08/12/24 08:43	08/14/24 21:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		35 - 166			08/12/24 08:43	08/14/24 21:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		08/12/24 08:43	08/14/24 21:17	1
Ethylbenzene	ND		0.050	mg/Kg		08/12/24 08:43	08/14/24 21:17	1
Toluene	ND		0.050	mg/Kg		08/12/24 08:43	08/14/24 21:17	1
Xylenes, Total	ND		0.10	mg/Kg		08/12/24 08:43	08/14/24 21:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		48 - 145			08/12/24 08:43	08/14/24 21:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	52		9.0	mg/Kg		08/12/24 13:30	08/13/24 16:00	1
Motor Oil Range Organics [C28-C40]	ND		45	mg/Kg		08/12/24 13:30	08/13/24 16:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	81		62 - 134			08/12/24 13:30	08/13/24 16:00	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	710		60	mg/Kg		08/13/24 09:35	08/13/24 15:39	20

Eurofins Albuquerque

## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-03@2'

Lab Sample ID: 885-9573-3

Date Collected: 08/06/24 10:24

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8	mg/Kg		08/12/24 08:43	08/14/24 22:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		35 - 166			08/12/24 08:43	08/14/24 22:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		08/12/24 08:43	08/14/24 22:22	1
Ethylbenzene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 22:22	1
Toluene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 22:22	1
Xylenes, Total	ND		0.096	mg/Kg		08/12/24 08:43	08/14/24 22:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		48 - 145			08/12/24 08:43	08/14/24 22:22	1

## Method: SW846 8015M/D - 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		08/12/24 13:30	08/13/24 16:13	1
Motor Oil Range Organics [C28-C40]	ND		45	mg/Kg		08/12/24 13:30	08/13/24 16:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	94		62 - 134			08/12/24 13:30	08/13/24 16:13	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1100		60	mg/Kg		08/13/24 09:35	08/13/24 15:51	20

Eurofins Albuquerque

## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-04@2'

Lab Sample ID: 885-9573-4

Date Collected: 08/06/24 10:27

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8	mg/Kg		08/12/24 08:43	08/14/24 22:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		35 - 166			08/12/24 08:43	08/14/24 22:44	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		08/12/24 08:43	08/14/24 22:44	1
Ethylbenzene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 22:44	1
Toluene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 22:44	1
Xylenes, Total	ND		0.096	mg/Kg		08/12/24 08:43	08/14/24 22:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		48 - 145			08/12/24 08:43	08/14/24 22:44	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	70		8.9	mg/Kg		08/12/24 13:30	08/13/24 16:25	1
Motor Oil Range Organics [C28-C40]	ND		44	mg/Kg		08/12/24 13:30	08/13/24 16:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	104		62 - 134			08/12/24 13:30	08/13/24 16:25	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	330		60	mg/Kg		08/13/24 09:35	08/13/24 16:04	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-05@2'

Lab Sample ID: 885-9573-5

Date Collected: 08/06/24 10:31

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9	mg/Kg		08/12/24 08:43	08/14/24 23:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		35 - 166			08/12/24 08:43	08/14/24 23:06	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		08/12/24 08:43	08/14/24 23:06	1
Ethylbenzene	ND		0.049	mg/Kg		08/12/24 08:43	08/14/24 23:06	1
Toluene	ND		0.049	mg/Kg		08/12/24 08:43	08/14/24 23:06	1
Xylenes, Total	ND		0.097	mg/Kg		08/12/24 08:43	08/14/24 23:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		48 - 145			08/12/24 08:43	08/14/24 23:06	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	270		9.8	mg/Kg		08/12/24 13:30	08/13/24 16:38	1
Motor Oil Range Organics [C28-C40]	170		49	mg/Kg		08/12/24 13:30	08/13/24 16:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	116		62 - 134			08/12/24 13:30	08/13/24 16:38	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	590		60	mg/Kg		08/13/24 09:35	08/13/24 16:16	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-06@2'

Lab Sample ID: 885-9573-6

Date Collected: 08/06/24 10:35

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8	mg/Kg		08/12/24 08:43	08/14/24 23:27	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		35 - 166			08/12/24 08:43	08/14/24 23:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		08/12/24 08:43	08/14/24 23:27	1
Ethylbenzene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 23:27	1
Toluene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 23:27	1
Xylenes, Total	ND		0.096	mg/Kg		08/12/24 08:43	08/14/24 23:27	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		48 - 145			08/12/24 08:43	08/14/24 23:27	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	180		9.1	mg/Kg		08/12/24 13:30	08/13/24 17:04	1
Motor Oil Range Organics [C28-C40]	140		46	mg/Kg		08/12/24 13:30	08/13/24 17:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	108		62 - 134			08/12/24 13:30	08/13/24 17:04	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	430		60	mg/Kg		08/13/24 09:35	08/13/24 16:28	20

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Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-07@2'      Lab Sample ID: 885-9573-7  
Date Collected: 08/06/24 10:38      Matrix: Solid  
Date Received: 08/09/24 08:15

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	ND		4.8	mg/Kg		08/12/24 08:43	08/14/24 23:49	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	99		35 - 166			08/12/24 08:43	08/14/24 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		08/12/24 08:43	08/14/24 23:49	1	
Ethylbenzene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 23:49	1	
Toluene	ND		0.048	mg/Kg		08/12/24 08:43	08/14/24 23:49	1	
Xylenes, Total	ND		0.097	mg/Kg		08/12/24 08:43	08/14/24 23:49	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	99		48 - 145			08/12/24 08:43	08/14/24 23:49	1	

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	62		9.1	mg/Kg		08/12/24 13:30	08/13/24 17:16	1	
Motor Oil Range Organics [C28-C40]	64		45	mg/Kg		08/12/24 13:30	08/13/24 17:16	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	102		62 - 134			08/12/24 13:30	08/13/24 17:16	1	

Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	780		60	mg/Kg		08/13/24 09:35	08/13/24 16:41	20	

## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-08@2'

Lab Sample ID: 885-9573-8

Date Collected: 08/06/24 10:42

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7	mg/Kg		08/12/24 08:43	08/15/24 00:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		35 - 166			08/12/24 08:43	08/15/24 00:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		08/12/24 08:43	08/15/24 00:11	1
Ethylbenzene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 00:11	1
Toluene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 00:11	1
Xylenes, Total	ND		0.093	mg/Kg		08/12/24 08:43	08/15/24 00:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		48 - 145			08/12/24 08:43	08/15/24 00:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	420		9.6	mg/Kg		08/12/24 13:30	08/13/24 17:29	1
Motor Oil Range Organics [C28-C40]	250		48	mg/Kg		08/12/24 13:30	08/13/24 17:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	119		62 - 134			08/12/24 13:30	08/13/24 17:29	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	430		60	mg/Kg		08/13/24 09:35	08/13/24 16:53	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-09@2'

Lab Sample ID: 885-9573-9

Date Collected: 08/06/24 10:45

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7	mg/Kg		08/12/24 08:43	08/15/24 00:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		35 - 166			08/12/24 08:43	08/15/24 00:33	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		08/12/24 08:43	08/15/24 00:33	1
Ethylbenzene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 00:33	1
Toluene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 00:33	1
Xylenes, Total	ND		0.094	mg/Kg		08/12/24 08:43	08/15/24 00:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		48 - 145			08/12/24 08:43	08/15/24 00:33	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	13		9.8	mg/Kg		08/12/24 13:30	08/13/24 17:42	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		08/12/24 13:30	08/13/24 17:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	105		62 - 134			08/12/24 13:30	08/13/24 17:42	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210		60	mg/Kg		08/13/24 09:35	08/13/24 17:05	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-10@2'

Lab Sample ID: 885-9573-10

Date Collected: 08/06/24 10:49

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7	mg/Kg		08/12/24 08:43	08/15/24 00:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		35 - 166			08/12/24 08:43	08/15/24 00:54	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		08/12/24 08:43	08/15/24 00:54	1
Ethylbenzene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 00:54	1
Toluene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 00:54	1
Xylenes, Total	ND		0.094	mg/Kg		08/12/24 08:43	08/15/24 00:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		48 - 145			08/12/24 08:43	08/15/24 00:54	1

## Method: SW846 8015M/D - 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		08/12/24 13:30	08/13/24 17:55	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		08/12/24 13:30	08/13/24 17:55	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	122		62 - 134			08/12/24 13:30	08/13/24 17:55	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		60	mg/Kg		08/13/24 09:35	08/13/24 17:18	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: WS24-01@0-3'

Lab Sample ID: 885-9573-11

Date Collected: 08/06/24 10:08

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8	mg/Kg		08/12/24 08:43	08/15/24 01:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		35 - 166			08/12/24 08:43	08/15/24 01:38	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		08/12/24 08:43	08/15/24 01:38	1
Ethylbenzene	ND		0.048	mg/Kg		08/12/24 08:43	08/15/24 01:38	1
Toluene	ND		0.048	mg/Kg		08/12/24 08:43	08/15/24 01:38	1
Xylenes, Total	ND		0.097	mg/Kg		08/12/24 08:43	08/15/24 01:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		48 - 145			08/12/24 08:43	08/15/24 01:38	1

## Method: SW846 8015M/D - 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		08/12/24 13:30	08/13/24 18:07	1
Motor Oil Range Organics [C28-C40]	ND		47	mg/Kg		08/12/24 13:30	08/13/24 18:07	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	58	S1-	62 - 134			08/12/24 13:30	08/13/24 18:07	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60	mg/Kg		08/13/24 09:35	08/13/24 17:55	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: WS24-02@0-2'

Lab Sample ID: 885-9573-12

Date Collected: 08/06/24 10:57

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9	mg/Kg		08/12/24 08:43	08/15/24 02:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		35 - 166			08/12/24 08:43	08/15/24 02:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		08/12/24 08:43	08/15/24 02:00	1
Ethylbenzene	ND		0.049	mg/Kg		08/12/24 08:43	08/15/24 02:00	1
Toluene	ND		0.049	mg/Kg		08/12/24 08:43	08/15/24 02:00	1
Xylenes, Total	ND		0.098	mg/Kg		08/12/24 08:43	08/15/24 02:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		48 - 145			08/12/24 08:43	08/15/24 02:00	1

## Method: SW846 8015M/D - 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		08/12/24 15:45	08/13/24 16:06	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		08/12/24 15:45	08/13/24 16:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	75		62 - 134			08/12/24 15:45	08/13/24 16:06	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60	mg/Kg		08/12/24 17:05	08/14/24 00:19	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: WS24-03@0-2'

Lab Sample ID: 885-9573-13

Date Collected: 08/06/24 11:07

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7	mg/Kg		08/12/24 08:43	08/15/24 02:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		35 - 166			08/12/24 08:43	08/15/24 02:21	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		08/12/24 08:43	08/15/24 02:21	1
Ethylbenzene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 02:21	1
Toluene	ND		0.047	mg/Kg		08/12/24 08:43	08/15/24 02:21	1
Xylenes, Total	ND		0.094	mg/Kg		08/12/24 08:43	08/15/24 02:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		48 - 145			08/12/24 08:43	08/15/24 02:21	1

## Method: SW846 8015M/D - 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		08/12/24 15:45	08/13/24 16:17	1
Motor Oil Range Organics [C28-C40]	ND		44	mg/Kg		08/12/24 15:45	08/13/24 16:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	124		62 - 134			08/12/24 15:45	08/13/24 16:17	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210		60	mg/Kg		08/12/24 17:05	08/14/24 00:34	20

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## Client Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: WS24-04@0-2'

Lab Sample ID: 885-9573-14

Date Collected: 08/06/24 11:12

Matrix: Solid

Date Received: 08/09/24 08:15

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8	mg/Kg		08/12/24 08:43	08/15/24 02:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		35 - 166			08/12/24 08:43	08/15/24 02:43	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		08/12/24 08:43	08/15/24 02:43	1
Ethylbenzene	ND		0.048	mg/Kg		08/12/24 08:43	08/15/24 02:43	1
Toluene	ND		0.048	mg/Kg		08/12/24 08:43	08/15/24 02:43	1
Xylenes, Total	ND		0.096	mg/Kg		08/12/24 08:43	08/15/24 02:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		48 - 145			08/12/24 08:43	08/15/24 02:43	1

## Method: SW846 8015M/D - 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		08/13/24 15:19	08/14/24 17:05	1
Motor Oil Range Organics [C28-C40]	ND		45	mg/Kg		08/13/24 15:19	08/14/24 17:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	125		62 - 134			08/13/24 15:19	08/14/24 17:05	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	200		60	mg/Kg		08/13/24 16:25	08/13/24 18:32	20

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QC Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

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

Lab Sample ID: MB 885-10051/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10323						Prep Batch: 10051			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics (GRO)-C6-C10	ND		5.0	mg/Kg		08/12/24 08:43	08/14/24 19:50	1	
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	105		35 - 166			08/12/24 08:43	08/14/24 19:50	1	

Lab Sample ID: LCS 885-10051/2-A						Client Sample ID: Lab Control Sample			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10323						Prep Batch: 10051			
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			25.0	26.4		mg/Kg		106	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	219		35 - 166						

Lab Sample ID: 885-9573-1 MS						Client Sample ID: BS24-01@3'			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10323						Prep Batch: 10051			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	ND		24.8	26.9		mg/Kg		109	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	219		35 - 166						

Lab Sample ID: 885-9573-1 MSD							Client Sample ID: BS24-01@3'				
Matrix: Solid							Prep Type: Total/NA				
Analysis Batch: 10323							Prep Batch: 10051				
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limits
Gasoline Range Organics (GRO)-C6-C10	ND		25.0	27.6		mg/Kg		110	70 - 130	3	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	215		35 - 166								

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-10051/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10325						Prep Batch: 10051			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.025	mg/Kg		08/12/24 08:43	08/14/24 19:50	1	
Ethylbenzene	ND		0.050	mg/Kg		08/12/24 08:43	08/14/24 19:50	1	
Toluene	ND		0.050	mg/Kg		08/12/24 08:43	08/14/24 19:50	1	

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## QC Sample Results

Client: Vertex

Job ID: 885-9573-1

Project/Site: Ragin Cajun 12 Federal 2

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

Lab Sample ID: MB 885-10051/1-A

Matrix: Solid

Analysis Batch: 10325

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 10051

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10	mg/Kg		08/12/24 08:43	08/14/24 19:50	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		48 - 145			08/12/24 08:43	08/14/24 19:50	1

Lab Sample ID: LCS 885-10051/3-A

Matrix: Solid

Analysis Batch: 10325

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 10051

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.992		mg/Kg		99	70 - 130
Ethylbenzene	1.00	1.00		mg/Kg		100	70 - 130
m-Xylene & p-Xylene	2.00	1.98		mg/Kg		99	70 - 130
o-Xylene	1.00	0.998		mg/Kg		100	70 - 130
Toluene	1.00	0.999		mg/Kg		100	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		48 - 145				

Lab Sample ID: 885-9573-2 MS

Matrix: Solid

Analysis Batch: 10325

Client Sample ID: BS24-02@2'

Prep Type: Total/NA

Prep Batch: 10051

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.996	0.968		mg/Kg		97	70 - 130
Ethylbenzene	ND		0.996	1.01		mg/Kg		101	70 - 130
m-Xylene & p-Xylene	ND		1.99	1.99		mg/Kg		100	70 - 130
o-Xylene	ND		0.996	0.987		mg/Kg		99	70 - 130
Toluene	ND		0.996	0.992		mg/Kg		100	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		48 - 145						

Lab Sample ID: 885-9573-2 MSD

Matrix: Solid

Analysis Batch: 10325

Client Sample ID: BS24-02@2'

Prep Type: Total/NA

Prep Batch: 10051

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.998	0.985		mg/Kg		99	70 - 130	2	20
Ethylbenzene	ND		0.998	1.00		mg/Kg		100	70 - 130	1	20
m-Xylene & p-Xylene	ND		2.00	1.99		mg/Kg		100	70 - 130	0	20
o-Xylene	ND		0.998	0.977		mg/Kg		98	70 - 130	1	20
Toluene	ND		0.998	0.990		mg/Kg		99	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	100		48 - 145								

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QC Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

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

Lab Sample ID: MB 885-10100/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10162						Prep Batch: 10100			
	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		08/12/24 13:30	08/13/24 13:10	1	
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		08/12/24 13:30	08/13/24 13:10	1	
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	74		62 - 134			08/12/24 13:30	08/13/24 13:10	1	

Lab Sample ID: LCS 885-10100/2-A						Client Sample ID: Lab Control Sample			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10162						Prep Batch: 10100			
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]			50.0	50.4		mg/Kg		101	60 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
Di-n-octyl phthalate (Surr)	71		62 - 134						

Lab Sample ID: 885-9573-11 MS						Client Sample ID: WS24-01@0-3'			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10162						Prep Batch: 10100			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND		49.3	44.0		mg/Kg		89	44 - 136
Surrogate	MS %Recovery	MS Qualifier	Limits						
Di-n-octyl phthalate (Surr)	39	S1-	62 - 134						

Lab Sample ID: 885-9573-11 MSD

Matrix: Solid

Analysis Batch: 10162

Client Sample ID: WS24-01@0-3'

Prep Type: Total/NA

Prep Batch: 10100

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		47.3	40.0		mg/Kg		85	44 - 136	10	32
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Di-n-octyl phthalate (Surr)	43	S1-	62 - 134								

Lab Sample ID: MB 885-10121/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 10172						Prep Batch: 10121			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		08/12/24 15:45	08/13/24 12:07	1	
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		08/12/24 15:45	08/13/24 12:07	1	

QC Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

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

Lab Sample ID: MB 885-10121/1-A  
Matrix: Solid  
Analysis Batch: 10172

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 10121

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	128		62 - 134	08/12/24 15:45	08/13/24 12:07	1

Lab Sample ID: LCS 885-10121/2-A  
Matrix: Solid  
Analysis Batch: 10172

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 10121

Analyte			Spike	LCS	LCS	Unit	D	%Rec	%Rec		
			Added	Result	Qualifier			Limits			
Diesel Range Organics [C10-C28]			50.0	74.4	*+	mg/Kg		149	60 - 135		
Surrogate	LCS		Limits	LCS							
	%Recovery	Qualifier									
Di-n-octyl phthalate (Surr)	161	S1+	62 - 134								

Lab Sample ID: 885-9573-13 MS  
Matrix: Solid  
Analysis Batch: 10172

Client Sample ID: WS24-03@0-2'  
Prep Type: Total/NA  
Prep Batch: 10121

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier				Limits		
Diesel Range Organics [C10-C28]	ND	*+	46.9	58.1		mg/Kg		124	44 - 136		
Surrogate	MS	MS									
	%Recovery	Qualifier	Limits								
Di-n-octyl phthalate (Surr)	129		62 - 134								

Lab Sample ID: 885-9573-13 MSD  
Matrix: Solid  
Analysis Batch: 10172

Client Sample ID: WS24-03@0-2'  
Prep Type: Total/NA  
Prep Batch: 10121

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Diesel Range Organics [C10-C28]	ND	*+	43.9	44.0		mg/Kg		100	44 - 136	28	32
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Di-n-octyl phthalate (Surr)	104		62 - 134								

Lab Sample ID: MB 885-10205/1-A  
Matrix: Solid  
Analysis Batch: 10279

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 10205

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		08/13/24 15:19	08/14/24 16:43	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		08/13/24 15:19	08/14/24 16:43	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
Di-n-octyl phthalate (Surr)	102		62 - 134			08/13/24 15:19	08/14/24 16:43	1

## QC Sample Results

Client: Vertex

Job ID: 885-9573-1

Project/Site: Ragin Cajun 12 Federal 2

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

Lab Sample ID: LCS 885-10205/2-A

Matrix: Solid

Analysis Batch: 10279

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 10205

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	50.0	48.5		mg/Kg		97	60 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Di-n-octyl phthalate (Surr)	108		62 - 134				

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-10129/1-A

Matrix: Solid

Analysis Batch: 10165

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 10129

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		08/12/24 17:05	08/13/24 16:12	1

Lab Sample ID: LCS 885-10129/2-A

Matrix: Solid

Analysis Batch: 10165

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 10129

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	30.7		mg/Kg		102	90 - 110

Lab Sample ID: MB 885-10167/1-A

Matrix: Solid

Analysis Batch: 10237

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 10167

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		08/13/24 09:35	08/13/24 12:09	1

Lab Sample ID: LCS 885-10167/2-A

Matrix: Solid

Analysis Batch: 10237

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 10167

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	28.4		mg/Kg		95	90 - 110

Lab Sample ID: MB 885-10228/1-A

Matrix: Solid

Analysis Batch: 10237

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 10228

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		08/13/24 16:25	08/13/24 18:07	1

Lab Sample ID: LCS 885-10228/2-A

Matrix: Solid

Analysis Batch: 10237

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 10228

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.1		mg/Kg		97	90 - 110

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QC Sample Results

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 885-9573-14 MS											Client Sample ID: WS24-04@0-2'			
Matrix: Solid											Prep Type: Total/NA			
Analysis Batch: 10237											Prep Batch: 10228			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits					
Chloride	200		30.0	223	4	mg/Kg		80	50 - 150					
Lab Sample ID: 885-9573-14 MSD											Client Sample ID: WS24-04@0-2'			
Matrix: Solid											Prep Type: Total/NA			
Analysis Batch: 10237											Prep Batch: 10228			
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	RPD Limit		
Chloride	200		29.9	219	4	mg/Kg		67	50 - 150		2	20		
Lab Sample ID: MB 885-10237/4											Client Sample ID: Method Blank			
Matrix: Solid											Prep Type: Total/NA			
Analysis Batch: 10237														
Analyte	MB Result	MB Qualifier	RL			Unit	D	Prepared	Analyzed		Dil Fac			
Chloride	ND		0.50			mg/Kg			08/13/24 08:14		1			
Lab Sample ID: MRL 885-10237/3											Client Sample ID: Lab Control Sample			
Matrix: Solid											Prep Type: Total/NA			
Analysis Batch: 10237														
Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits					
Chloride			0.500	0.510		mg/L		102	50 - 150					

## QC Association Summary

Client: Vertex

Job ID: 885-9573-1

Project/Site: Ragin Cajun 12 Federal 2

## GC VOA

## Prep Batch: 10051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	5030C	
885-9573-2	BS24-02@2'	Total/NA	Solid	5030C	
885-9573-3	BS24-03@2'	Total/NA	Solid	5030C	
885-9573-4	BS24-04@2'	Total/NA	Solid	5030C	
885-9573-5	BS24-05@2'	Total/NA	Solid	5030C	
885-9573-6	BS24-06@2'	Total/NA	Solid	5030C	
885-9573-7	BS24-07@2'	Total/NA	Solid	5030C	
885-9573-8	BS24-08@2'	Total/NA	Solid	5030C	
885-9573-9	BS24-09@2'	Total/NA	Solid	5030C	
885-9573-10	BS24-10@2'	Total/NA	Solid	5030C	
885-9573-11	WS24-01@0-3'	Total/NA	Solid	5030C	
885-9573-12	WS24-02@0-2'	Total/NA	Solid	5030C	
885-9573-13	WS24-03@0-2'	Total/NA	Solid	5030C	
885-9573-14	WS24-04@0-2'	Total/NA	Solid	5030C	
MB 885-10051/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-10051/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-10051/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-9573-1 MS	BS24-01@3'	Total/NA	Solid	5030C	
885-9573-1 MSD	BS24-01@3'	Total/NA	Solid	5030C	
885-9573-2 MS	BS24-02@2'	Total/NA	Solid	5030C	
885-9573-2 MSD	BS24-02@2'	Total/NA	Solid	5030C	

## Analysis Batch: 10323

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	8015M/D	10051
885-9573-2	BS24-02@2'	Total/NA	Solid	8015M/D	10051
885-9573-3	BS24-03@2'	Total/NA	Solid	8015M/D	10051
885-9573-4	BS24-04@2'	Total/NA	Solid	8015M/D	10051
885-9573-5	BS24-05@2'	Total/NA	Solid	8015M/D	10051
885-9573-6	BS24-06@2'	Total/NA	Solid	8015M/D	10051
885-9573-7	BS24-07@2'	Total/NA	Solid	8015M/D	10051
885-9573-8	BS24-08@2'	Total/NA	Solid	8015M/D	10051
885-9573-9	BS24-09@2'	Total/NA	Solid	8015M/D	10051
885-9573-10	BS24-10@2'	Total/NA	Solid	8015M/D	10051
885-9573-11	WS24-01@0-3'	Total/NA	Solid	8015M/D	10051
885-9573-12	WS24-02@0-2'	Total/NA	Solid	8015M/D	10051
885-9573-13	WS24-03@0-2'	Total/NA	Solid	8015M/D	10051
885-9573-14	WS24-04@0-2'	Total/NA	Solid	8015M/D	10051
MB 885-10051/1-A	Method Blank	Total/NA	Solid	8015M/D	10051
LCS 885-10051/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	10051
885-9573-1 MS	BS24-01@3'	Total/NA	Solid	8015M/D	10051
885-9573-1 MSD	BS24-01@3'	Total/NA	Solid	8015M/D	10051

## Analysis Batch: 10325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	8021B	10051
885-9573-2	BS24-02@2'	Total/NA	Solid	8021B	10051
885-9573-3	BS24-03@2'	Total/NA	Solid	8021B	10051
885-9573-4	BS24-04@2'	Total/NA	Solid	8021B	10051
885-9573-5	BS24-05@2'	Total/NA	Solid	8021B	10051
885-9573-6	BS24-06@2'	Total/NA	Solid	8021B	10051

Eurofins Albuquerque

## QC Association Summary

Client: Vertex

Job ID: 885-9573-1

Project/Site: Ragin Cajun 12 Federal 2

## GC VOA (Continued)

## Analysis Batch: 10325 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-7	BS24-07@2'	Total/NA	Solid	8021B	10051
885-9573-8	BS24-08@2'	Total/NA	Solid	8021B	10051
885-9573-9	BS24-09@2'	Total/NA	Solid	8021B	10051
885-9573-10	BS24-10@2'	Total/NA	Solid	8021B	10051
885-9573-11	WS24-01@0-3'	Total/NA	Solid	8021B	10051
885-9573-12	WS24-02@0-2'	Total/NA	Solid	8021B	10051
885-9573-13	WS24-03@0-2'	Total/NA	Solid	8021B	10051
885-9573-14	WS24-04@0-2'	Total/NA	Solid	8021B	10051
MB 885-10051/1-A	Method Blank	Total/NA	Solid	8021B	10051
LCS 885-10051/3-A	Lab Control Sample	Total/NA	Solid	8021B	10051
885-9573-2 MS	BS24-02@2'	Total/NA	Solid	8021B	10051
885-9573-2 MSD	BS24-02@2'	Total/NA	Solid	8021B	10051

## GC Semi VOA

## Prep Batch: 10100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	SHAKE	
885-9573-2	BS24-02@2'	Total/NA	Solid	SHAKE	
885-9573-3	BS24-03@2'	Total/NA	Solid	SHAKE	
885-9573-4	BS24-04@2'	Total/NA	Solid	SHAKE	
885-9573-5	BS24-05@2'	Total/NA	Solid	SHAKE	
885-9573-6	BS24-06@2'	Total/NA	Solid	SHAKE	
885-9573-7	BS24-07@2'	Total/NA	Solid	SHAKE	
885-9573-8	BS24-08@2'	Total/NA	Solid	SHAKE	
885-9573-9	BS24-09@2'	Total/NA	Solid	SHAKE	
885-9573-10	BS24-10@2'	Total/NA	Solid	SHAKE	
885-9573-11	WS24-01@0-3'	Total/NA	Solid	SHAKE	
MB 885-10100/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-10100/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-9573-11 MS	WS24-01@0-3'	Total/NA	Solid	SHAKE	
885-9573-11 MSD	WS24-01@0-3'	Total/NA	Solid	SHAKE	

## Prep Batch: 10121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-12	WS24-02@0-2'	Total/NA	Solid	SHAKE	
885-9573-13	WS24-03@0-2'	Total/NA	Solid	SHAKE	
MB 885-10121/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-10121/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-9573-13 MS	WS24-03@0-2'	Total/NA	Solid	SHAKE	
885-9573-13 MSD	WS24-03@0-2'	Total/NA	Solid	SHAKE	

## Analysis Batch: 10162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-2	BS24-02@2'	Total/NA	Solid	8015M/D	10100
885-9573-3	BS24-03@2'	Total/NA	Solid	8015M/D	10100
885-9573-4	BS24-04@2'	Total/NA	Solid	8015M/D	10100
885-9573-5	BS24-05@2'	Total/NA	Solid	8015M/D	10100
885-9573-6	BS24-06@2'	Total/NA	Solid	8015M/D	10100
885-9573-7	BS24-07@2'	Total/NA	Solid	8015M/D	10100
885-9573-8	BS24-08@2'	Total/NA	Solid	8015M/D	10100

Eurofins Albuquerque

QC Association Summary

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

GC Semi VOA (Continued)

Analysis Batch: 10162 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-9	BS24-09@2'	Total/NA	Solid	8015M/D	10100
885-9573-10	BS24-10@2'	Total/NA	Solid	8015M/D	10100
885-9573-11	WS24-01@0-3'	Total/NA	Solid	8015M/D	10100
MB 885-10100/1-A	Method Blank	Total/NA	Solid	8015M/D	10100
LCS 885-10100/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	10100
885-9573-11 MS	WS24-01@0-3'	Total/NA	Solid	8015M/D	10100
885-9573-11 MSD	WS24-01@0-3'	Total/NA	Solid	8015M/D	10100

Analysis Batch: 10163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	8015M/D	10100

Analysis Batch: 10172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-12	WS24-02@0-2'	Total/NA	Solid	8015M/D	10121
885-9573-13	WS24-03@0-2'	Total/NA	Solid	8015M/D	10121
MB 885-10121/1-A	Method Blank	Total/NA	Solid	8015M/D	10121
LCS 885-10121/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	10121
885-9573-13 MS	WS24-03@0-2'	Total/NA	Solid	8015M/D	10121
885-9573-13 MSD	WS24-03@0-2'	Total/NA	Solid	8015M/D	10121

Prep Batch: 10205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-14	WS24-04@0-2'	Total/NA	Solid	SHAKE	
MB 885-10205/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-10205/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 10279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-14	WS24-04@0-2'	Total/NA	Solid	8015M/D	10205
MB 885-10205/1-A	Method Blank	Total/NA	Solid	8015M/D	10205
LCS 885-10205/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	10205

HPLC/IC

Prep Batch: 10129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-12	WS24-02@0-2'	Total/NA	Solid	300_Prep	
885-9573-13	WS24-03@0-2'	Total/NA	Solid	300_Prep	
MB 885-10129/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-10129/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 10165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-12	WS24-02@0-2'	Total/NA	Solid	300.0	10129
885-9573-13	WS24-03@0-2'	Total/NA	Solid	300.0	10129
MB 885-10129/1-A	Method Blank	Total/NA	Solid	300.0	10129
LCS 885-10129/2-A	Lab Control Sample	Total/NA	Solid	300.0	10129

## QC Association Summary

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

## HPLC/IC

## Prep Batch: 10167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	300_Prep	
885-9573-2	BS24-02@2'	Total/NA	Solid	300_Prep	
885-9573-3	BS24-03@2'	Total/NA	Solid	300_Prep	
885-9573-4	BS24-04@2'	Total/NA	Solid	300_Prep	
885-9573-5	BS24-05@2'	Total/NA	Solid	300_Prep	
885-9573-6	BS24-06@2'	Total/NA	Solid	300_Prep	
885-9573-7	BS24-07@2'	Total/NA	Solid	300_Prep	
885-9573-8	BS24-08@2'	Total/NA	Solid	300_Prep	
885-9573-9	BS24-09@2'	Total/NA	Solid	300_Prep	
885-9573-10	BS24-10@2'	Total/NA	Solid	300_Prep	
885-9573-11	WS24-01@0-3'	Total/NA	Solid	300_Prep	
MB 885-10167/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-10167/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

## Prep Batch: 10228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-14	WS24-04@0-2'	Total/NA	Solid	300_Prep	
MB 885-10228/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-10228/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-9573-14 MS	WS24-04@0-2'	Total/NA	Solid	300_Prep	
885-9573-14 MSD	WS24-04@0-2'	Total/NA	Solid	300_Prep	

## Analysis Batch: 10237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-9573-1	BS24-01@3'	Total/NA	Solid	300.0	10167
885-9573-2	BS24-02@2'	Total/NA	Solid	300.0	10167
885-9573-3	BS24-03@2'	Total/NA	Solid	300.0	10167
885-9573-4	BS24-04@2'	Total/NA	Solid	300.0	10167
885-9573-5	BS24-05@2'	Total/NA	Solid	300.0	10167
885-9573-6	BS24-06@2'	Total/NA	Solid	300.0	10167
885-9573-7	BS24-07@2'	Total/NA	Solid	300.0	10167
885-9573-8	BS24-08@2'	Total/NA	Solid	300.0	10167
885-9573-9	BS24-09@2'	Total/NA	Solid	300.0	10167
885-9573-10	BS24-10@2'	Total/NA	Solid	300.0	10167
885-9573-11	WS24-01@0-3'	Total/NA	Solid	300.0	10167
885-9573-14	WS24-04@0-2'	Total/NA	Solid	300.0	10228
MB 885-10167/1-A	Method Blank	Total/NA	Solid	300.0	10167
MB 885-10228/1-A	Method Blank	Total/NA	Solid	300.0	10228
MB 885-10237/4	Method Blank	Total/NA	Solid	300.0	
LCS 885-10167/2-A	Lab Control Sample	Total/NA	Solid	300.0	10167
LCS 885-10228/2-A	Lab Control Sample	Total/NA	Solid	300.0	10228
MRL 885-10237/3	Lab Control Sample	Total/NA	Solid	300.0	
885-9573-14 MS	WS24-04@0-2'	Total/NA	Solid	300.0	10228
885-9573-14 MSD	WS24-04@0-2'	Total/NA	Solid	300.0	10228

Eurofins Albuquerque

Lab Chronicle

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

**Client Sample ID: BS24-01@3'**  
**Date Collected: 08/06/24 10:04**  
**Date Received: 08/09/24 08:15**

**Lab Sample ID: 885-9573-1**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 20:12
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 20:12
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10163	KR	EET ALB	08/13/24 17:53
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 15:27

**Client Sample ID: BS24-02@2'**  
**Date Collected: 08/06/24 10:20**  
**Date Received: 08/09/24 08:15**

**Lab Sample ID: 885-9573-2**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 21:17
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 21:17
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 16:00
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 15:39

**Client Sample ID: BS24-03@2'**  
**Date Collected: 08/06/24 10:24**  
**Date Received: 08/09/24 08:15**

**Lab Sample ID: 885-9573-3**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 22:22
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 22:22
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 16:13
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 15:51

**Client Sample ID: BS24-04@2'**  
**Date Collected: 08/06/24 10:27**  
**Date Received: 08/09/24 08:15**

**Lab Sample ID: 885-9573-4**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 22:44

Eurofins Albuquerque

Lab Chronicle

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-04@2'

Lab Sample ID: 885-9573-4

Date Collected: 08/06/24 10:27

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 22:44
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 16:25
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 16:04

Client Sample ID: BS24-05@2'

Lab Sample ID: 885-9573-5

Date Collected: 08/06/24 10:31

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 23:06
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 23:06
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 16:38
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 16:16

Client Sample ID: BS24-06@2'

Lab Sample ID: 885-9573-6

Date Collected: 08/06/24 10:35

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 23:27
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 23:27
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 17:04
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 16:28

Client Sample ID: BS24-07@2'

Lab Sample ID: 885-9573-7

Date Collected: 08/06/24 10:38

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/14/24 23:49
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/14/24 23:49

Eurofins Albuquerque

Lab Chronicle

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-07@2'

Lab Sample ID: 885-9573-7

Date Collected: 08/06/24 10:38

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 17:16
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 16:41

Client Sample ID: BS24-08@2'

Lab Sample ID: 885-9573-8

Date Collected: 08/06/24 10:42

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 00:11
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 00:11
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 17:29
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 16:53

Client Sample ID: BS24-09@2'

Lab Sample ID: 885-9573-9

Date Collected: 08/06/24 10:45

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 00:33
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 00:33
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 17:42
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 17:05

Client Sample ID: BS24-10@2'

Lab Sample ID: 885-9573-10

Date Collected: 08/06/24 10:49

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 00:54
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 00:54
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 17:55

Eurofins Albuquerque

Lab Chronicle

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: BS24-10@2'

Lab Sample ID: 885-9573-10

Date Collected: 08/06/24 10:49

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 17:18

Client Sample ID: WS24-01@0-3'

Lab Sample ID: 885-9573-11

Date Collected: 08/06/24 10:08

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 01:38
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 01:38
Total/NA	Prep	SHAKE			10100	KR	EET ALB	08/12/24 13:30
Total/NA	Analysis	8015M/D		1	10162	KR	EET ALB	08/13/24 18:07
Total/NA	Prep	300_Prep			10167	RC	EET ALB	08/13/24 09:35
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 17:55

Client Sample ID: WS24-02@0-2'

Lab Sample ID: 885-9573-12

Date Collected: 08/06/24 10:57

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 02:00
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 02:00
Total/NA	Prep	SHAKE			10121	EM	EET ALB	08/12/24 15:45
Total/NA	Analysis	8015M/D		1	10172	EM	EET ALB	08/13/24 16:06
Total/NA	Prep	300_Prep			10129	KB	EET ALB	08/12/24 17:05
Total/NA	Analysis	300.0		20	10165	RC	EET ALB	08/14/24 00:19

Client Sample ID: WS24-03@0-2'

Lab Sample ID: 885-9573-13

Date Collected: 08/06/24 11:07

Matrix: Solid

Date Received: 08/09/24 08:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 02:21
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 02:21
Total/NA	Prep	SHAKE			10121	EM	EET ALB	08/12/24 15:45
Total/NA	Analysis	8015M/D		1	10172	EM	EET ALB	08/13/24 16:17
Total/NA	Prep	300_Prep			10129	KB	EET ALB	08/12/24 17:05
Total/NA	Analysis	300.0		20	10165	RC	EET ALB	08/14/24 00:34

Lab Chronicle

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

Client Sample ID: WS24-04@0-2'  
Date Collected: 08/06/24 11:12  
Date Received: 08/09/24 08:15

Lab Sample ID: 885-9573-14  
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8015M/D		1	10323	AT	EET ALB	08/15/24 02:43
Total/NA	Prep	5030C			10051	AT	EET ALB	08/12/24 08:43
Total/NA	Analysis	8021B		1	10325	AT	EET ALB	08/15/24 02:43
Total/NA	Prep	SHAKE			10205	KR	EET ALB	08/13/24 15:19
Total/NA	Analysis	8015M/D		1	10279	EM	EET ALB	08/14/24 17:05
Total/NA	Prep	300_Prep			10228	EH	EET ALB	08/13/24 16:25
Total/NA	Analysis	300.0		20	10237	JT	EET ALB	08/13/24 18:32

Laboratory References:  
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex  
Project/Site: Ragin Cajun 12 Federal 2

Job ID: 885-9573-1

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
8015M/D	5030C	Solid	Gasoline Range Organics (GRO)-C6-C10
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	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





## Login Sample Receipt Checklist

Client: Vertex

Job Number: 885-9573-1

Login Number: 9573

List Source: Eurofins Albuquerque

List Number: 1

Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
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.	False	IDs on containers do not match the COC. Logged in per COC.
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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

QUESTIONS

Action 377388

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 377388
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nOY1809932713
Incident Name	NOY1809932713 RAGIN CAJUN 12 FEDERAL #002H @ 30-025-42256
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-025-42256] RAGIN CAJUN 12 FEDERAL #002H

Location of Release Source	
Please answer all the questions in this group.	
Site Name	RAGIN CAJUN 12 FEDERAL #002H
Date Release Discovered	03/24/2018
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:   Other (Specify)   Produced Water   Released: 30 BBL   Recovered: 0 BBL   Lost: 30 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.

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QUESTIONS, Page 2

Action 377388

**QUESTIONS (continued)**

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	377388
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS**

<b>Nature and Volume of Release (continued)</b>	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	Yes
Reasons why this would be considered a submission for a notification of a major release	From paragraph A. "Major release" determine using: (1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.
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: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmn.com Date: 08/26/2024
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QUESTIONS, Page 3

Action 377388

**QUESTIONS (continued)**

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 377388
	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 51 and 75 (ft.)
What method was used to determine the depth to ground water	OCD Imaging Records Lookup
Did this release impact groundwater or surface water	No
<b>What is the minimum distance, between the closest lateral extents of the release and the following surface areas:</b>	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (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 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

**Remediation Plan**

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)	7000
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	12000
GRO+DRO	(EPA SW-846 Method 8015M)	7100
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	06/06/2023
On what date will (or did) the final sampling or liner inspection occur	08/06/2024
On what date will (or was) the remediation complete(d)	07/26/2024
What is the estimated surface area (in square feet) that will be reclaimed	1971
What is the estimated volume (in cubic yards) that will be reclaimed	220
What is the estimated surface area (in square feet) that will be remediated	1971
What is the estimated volume (in cubic yards) that will be remediated	220

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.

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QUESTIONS, Page 4

Action 377388

**QUESTIONS (continued)**

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	377388
	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 <b>off-site</b> disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for <b>off-site</b> disposal	LEA LAND LANDFILL [fEEM0112342028]
<b>OR</b> which OCD approved well (API) will be used for <b>off-site</b> disposal	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, out-of-state	Not answered.
<b>OR</b> is the <b>off-site</b> disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and <b>on-site</b> remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.

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: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmn.com Date: 08/26/2024
--	--

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.

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QUESTIONS, Page 5  
  
Action 377388

QUESTIONS (continued)

Operator:  DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	377388
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

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

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QUESTIONS, Page 6

Action 377388

**QUESTIONS (continued)**

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	377388
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

**QUESTIONS**

Sampling Event Information	
Last sampling notification (C-141N) recorded	367661
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	08/06/2024
What was the (estimated) number of samples that were to be gathered	11
What was the sampling surface area in square feet	2100

**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	1971
What was the total volume (cubic yards) remediated	220
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	1971
What was the total volume (in cubic yards) reclaimed	220
Summarize any additional remediation activities not included by answers (above)	see report

*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: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmn.com Date: 08/26/2024
--	--

**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

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Action 377388

QUESTIONS (continued)

Operator:  DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	377388
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

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

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CONDITIONS  
  
Action 377388

CONDITIONS

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CONDITIONS

Created By	Condition	Condition Date
scwells	None	8/29/2024