

Apache 24 Fed 3

nRM1933039312

10/06/2019

Spill Volume(Bbls) Calculator	
<i>Inputs in blue , Outputs in red</i>	
Contaminated Soil measurement	
Area (sq feet)	Depth (in)
<u>1,620.00</u>	<u>2.50</u>
Cubic Feet of Soil Impacted	<u>337.50</u>
Barrels of Soil Impacted	<u>60.16</u>
Soil Type	Clay/Sand
Barrels of Oil Assuming 100% Saturation	<u>9.02</u>
Saturation	Fluid present with shovel/backhoe
Estimated Barrels of Oil Released	9.02
Free Standing Fluid Only	
Area (sq feet)	Depth (inches))
<u>1,620.00</u>	<u>2.100</u>
Standing fluid	<u>50.42</u>
<u>Total fluids spilled</u>	<u>59.45</u>



Incident Number: nRM1933039312, 2RP-5711

Release Assessment and Closure

Apache 24 Federal #003

Unit I, Section 24, Township 22 South, Range 30 East

API: 30-015-33080

County: Eddy

Vertex File Number: 21E-02816-01

Prepared for:

Devon Energy Production Company, LP

Prepared by:

Vertex Resource Services Inc.

Date:

January 2024

Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2024

Release Assessment and Closure
Apache 24 Federal #003
Unit I, Section 24, Township 22 South, Range 30 East
API: 30-015-33080
County: Eddy

Prepared for:
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Artesia, New Mexico 88210

New Mexico Oil Conservation Division – District 2 – Artesia
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January 26, 2024

Date

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Kent Stallings, P.G.
PROJECT MANAGER, REPORT REVIEW

February 02, 2024

Date

Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2024

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Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2024

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1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a crude oil release that occurred on October 6, 2019, at Apache 24 Federal #003 API 30-015-33080 (hereafter referred to as the “site”). Devon submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 2 on October 9, 2019. Incident ID number nRM1933039312, 2RP-5711 was assigned to this incident.

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

The release occurred on October 6, 2019, due to a broken sight glass on the production heater. The incident was reported on October 9, 2019, and involved the release of approximately 60 barrels (bbl) of produced oil on the pad surface. Approximately 60 bbl of free fluid was removed during initial clean-up. Additional details relevant to the release are presented in the C-141 Report. Daily Field Reports (DFRs) with site photographs are included in Appendix C.

3.0 Site Characteristics

The site is located approximately 16.3 miles east-northeast of Loving, New Mexico (Google Inc., 2023). The legal location for the site is Unit I, Section 24, Township 22 South and Range 30 East in Eddy 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 and storage. The following sections specifically describe the release area on the northeast corner of the constructed pad (Figure 1).

The surrounding landscape is associated with dunes, interdunes, and plains with elevations ranging between 2,700 and 5,500 feet. The climate is semiarid with average annual precipitation ranging between 5 and 15 inches. The dominant vegetation was determined to be grasses with shrubs (United States Department of Agriculture, Natural Resources Conservation Service, 2023). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

The surface geology at the site primarily comprises Qep – Eolian and piedmont deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2023) and the soil at the site is characterized as PA – Pajarito loamy fine sand. The soils tend to be well drained with very low potential for runoff (United States Department of Agriculture, Natural Resources Conservation Service, 2023). The karst geology potential for the site low (United States Department of the Interior, Bureau of Land Management, 2018).

4.0 Closure Criteria Determination

The depth to groundwater was determined by drilling a borehole permitted by the New Mexico Office of the State Engineer (NMOSE) within a 0.5-mile radius of the site. The borehole was advanced to a depth of 55 feet on December 15, 2023. The borehole was left to recharge as per the requirements on the WR-07 Application for Permit to Drill a Well with No Water Rights, and an interface probe was utilized to determine whether groundwater was present at the conclusion of the 72-hour recharge period. No water was found to be present at that time. The borehole was plugged and abandoned on December 21, 2023, according to the WR-08 permit, Well Plugging Plan of Operations, filed with NMOSE. Documentation related to the exploratory borehole is included in Appendix F.

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 0.16 miles north of the site (United States Fish and Wildlife Service, 2023). At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC. Information pertaining to the closure criteria determination is summarized in Table 1 and references are included in Appendix B.

Due to the sale of the site and other wells to Harvard Petroleum Company, all unresolved releases associated with divested properties will be remediated sufficiently as to meet reclamation criteria. The closure criteria will also adhere to Paragraph (1) of Subsection D of 19.15.29.13 NMAC for reclamation from surface to 4 feet below ground surface (bgs). The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 2.

Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2023

Table 1. Closure Criteria Determination				
Site Name: Apache 24 I Federal #003				
Spill Coordinates: 32.375804,-103.826850		X: 610359.25	Y: 3582697.01	
Site Specific Conditions		Value	Unit	Reference
1	Depth to Groundwater (nearest reference)	>55	feet	1
	Distance between release and nearest DTGW reference	1,435	feet	
		0.27	miles	
	Date of nearest DTGW reference measurement		December 15, 2023	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	837	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	3,986	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	16,002	feet	4
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or	12,960	feet	5
	ii) Within 1000 feet of any fresh water well or spring	3,110	feet	5
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)	6
7	Within 300 feet of a wetland	13,152	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
	Distance between release and nearest registered mine	18,815	feet	
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low	9
	Distance between release and nearest High Karst	8,300	feet	
10	Within a 100-year Floodplain	>500	year	10
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	27,634	feet	
11	Soil Type	Loamy fine sand, fine sandy loam		11
12	Ecological Classification	Loamy Sand		12
13	Geology	Eolian and piedmont deposits		13
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'	

Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2023

Table 2. Closure Criteria for Soils to Remediation & Reclamation Standards		
Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
0-4 feet bgs (19.15.29.13)	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
DTGW 51-100 feet (19.15.29.12)	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

bgs – below ground surface

DTGW – depth to groundwater

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

Initial spill inspection and site characterization of the release was completed by Vertex between January 12, 2020, and September 23, 2022, including vertical and horizontal delineation. The impacted area was determined to be approximately 63 feet long and 60 feet wide; the total affected area was determined to be 2,726 square feet. The DFRs 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 September 19, 2022, and were finalized on November 9, 2022. Vertex personnel supervised the excavation of impacted soils. Field screening was conducted on the base and side walls of the excavation to guide and extend the excavation as needed to adhere to NMOCD reclamation requirements. Field screening consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dextsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and an electroconductivity meter (chloride). Field screening results were used to identify areas requiring further remediation. Contaminated soil was removed to depths of 4 to 10 feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility. The DFRs documenting various phases of the remediation are included in Appendix C.

Notifications that confirmatory samples were being collected was provided to the NMOCD on August 31 and November 3, 2020, October 11, 2022, and November 3, 2022 and are included in Appendix D. A total of 28 excavation base samples and 24 excavation wall samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Excavation boundaries and confirmation sample locations are presented on Figure 2. Laboratory results are presented in Table 4, and the laboratory data reports are included in Appendix E.

Laboratory results for GRO+DRO (1,100 ppm) in excavation base sample BS22-10 exceeded NMOCD remediation criterion, as presented in Table 4. Laboratory results for chloride (2,200 ppm) in excavation wall sample WS22-16 exceeded NMOCD reclamation criterion, as presented in Table 4. Notification that additional confirmatory samples were being collected for the excavation was provided to the NMOCD on November 3, 2022. Additional soil was scraped from the area of BS22-10, sloping down to 10.5 feet bgs in the center. Confirmatory samples BS22-10 and WS22-16 were re-collected on November 9, 2022. All final confirmatory samples collected and analyzed were below closure criteria for the site.

6.0 Closure Request

Vertex recommends no additional remediation action to address the release at Apache 24 Federal #003. Laboratory analyses of the final confirmatory samples showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is between 51 and 100 feet bgs as shown in Table 2. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

The excavation was backfilled with non-waste-containing, uncontaminated, earthen material, sourced locally, and placed to meet the site's existing grade to prevent ponding of water and erosion.

Vertex requests that this incident (nRM1933039312, 2RP-5711) 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 October 6, 2019, release at Apache 24 Federal #003.

The release area was fully delineated, remediated, and backfilled with local soils by December 15, 2022. Confirmation samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted by a Release locations between 51 and 100 feet to groundwater. Based on these findings, Devon requests that this release be closed.

Should you have any questions or concerns, please do not hesitate to contact the project manager Kent Stallings at 346.814.1413 or kstallings@vertex.ca.

Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2023

7.0 References

Google Inc. (2023). *Google Earth Pro (Version 7.3.3)* [Software]. Retrieved from <https://earth.google.com>

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

New Mexico Office of the State Engineer. (2023). *New Mexico Water Rights Reporting System*. Retrieved from <http://nmwrrs.ose.state.nm.us/nmwrrs>

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United States Department of Agriculture, Natural Resources Conservation Service. (2023). *Web Soil Survey*. Retrieved from <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

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United States Fish and Wildlife Service. (2023). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

Devon Energy Production Company, LP
Apache 24 Federal #003, nRM1933039312

Release Assessment and Closure
January 2023

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

Document Path: G:\1-Projects\US PROJECTS\Devon Energy Corporation\2021\21E-02816001 - Apache 24 | Federal 3 | Figure 1 Characterization Schematic Apache 24 Federal 003 (21E-02816) Request# 16032.mxd



◆ Borehole □ Approximate Lease Boundary □ Approximate Release Area (~2,726 sq.ft.)



0 5 10 feet
NAD 1983 UTM Zone 13N
Date: Jun 21/23

Map Center:
Lat: 32.375785,
Long: -103.826367



Characterization Sampling Site Schematic Apache 24 | Federal #003

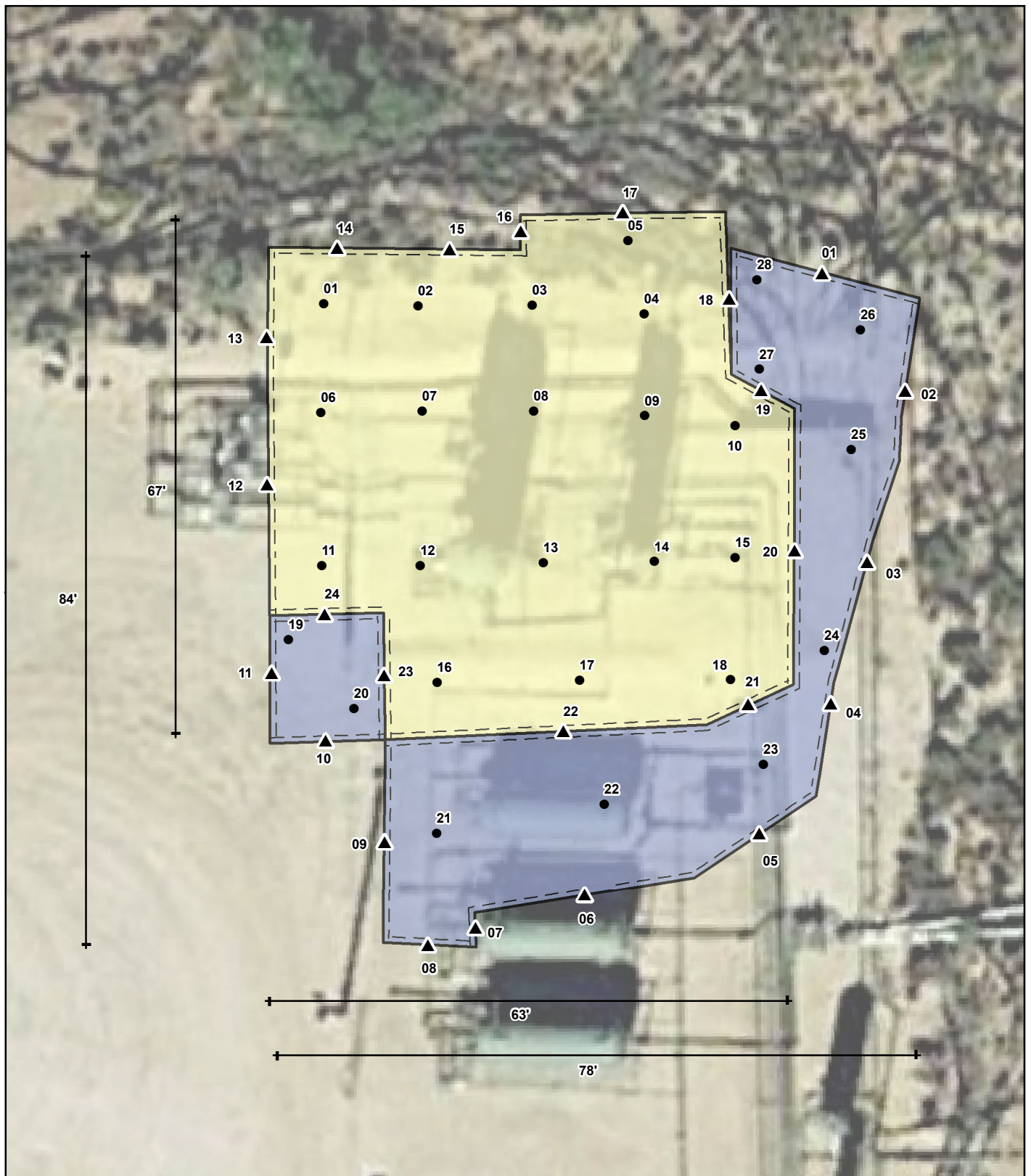
FIGURE:
1



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

Note: Image from Google Earth Pro, 2022, georeferenced by Vertex Professional Services Ltd. (Vertex), 2023. Features from GPS, Vertex, 2023.

VERSATILITY. EXPERTISE.



Document Path: G:\1-Projects\US PROJECTS\Devon Energy Corporation\2021\21E-02816001 - Apache 24 | Federal 3 | Figure 2 | Confirmation Schematic Apache 24 | Federal 3.mxd



0 2.5 5 10 ft.
NAD 1983 UTM Zone 13N
Date: Nov 03/22

Map Center:
Lat: 32.375795,
Long:-103.826387



Confirmatory Sampling Site Schematic Apache 24 Federal #003

FIGURE:

2



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

Note: Background Imagery from Google Earth, 2022. Composite base sample from GPS, Vertex Professional Services Ltd., 2022.

VERSATILITY. EXPERTISE.

TABLES

Client Name: Devon Energy Production Company, LP

Site Name: Apache 24 Federal #003

NMOCD Tracking #: nRM1933039312, 2RP-5711

Project #: 21E-02816-01

Lab Reports: 2011577, 2011580, 2108G27, 2208C63, 2208D51, and 2209E06

Table 3. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs

Table 3. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs													
Sample Description			Field Screening			Petroleum Hydrocarbons							
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					Inorganic
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH20-01	0	November 6, 2020	-	-	10,377	ND	ND	ND	10000	6900	10000	16900	19000
	2	November 6, 2020	-	31	4,387	ND	ND	ND	ND	ND	ND	ND	3900
	4	August 19, 2022	2	-	2,493	ND	ND	ND	540	410	540	950	2900
	6	August 19, 2022	0	148	3,759	ND	ND	ND	ND	ND	ND	ND	4000
	8	August 19, 2022	0	-	1,581	ND	ND	ND	ND	ND	ND	ND	1500
BH20-02	0	November 6, 2020	-	-	165	-	-	-	-	-	-	-	-
	2	November 6, 2020	-	619	248	-	-	-	-	-	-	-	-
	4	August 19, 2022	1	1,085	73	ND	ND	ND	1800	1700	1800	3500	120
	6	August 19, 2022	0	129	18	ND	ND	ND	53	61	53	114	ND
	8	August 19, 2022	1	188	122	ND	ND	ND	300	220	300	520	78
BH20-03	0	November 6, 2020	-	-	393	-	-	-	-	-	-	-	-
	1	November 6, 2020	-	71	669	-	-	-	-	-	-	-	-
	2	August 25, 2021	-	-	-	ND	ND	ND	22	ND	22	22	ND
BH20-04	0	November 6, 2020	-	-	8,065	ND	0.12	30	12000	8200	12030	20230	16000
	2	November 6, 2020	-	1,076	2,817	ND	ND	6.1	730	980	736.1	1716.1	2700
	4	August 19, 2022	0	507	1,385	ND	ND	ND	310	240	310	550	1400
	6	August 19, 2022	0	-	1,221	ND	ND	ND	83	96	83	179	1300
	8	August 19, 2022	0	-	868	ND	ND	ND	58	ND	58	58	530
BH22-01	0	August 18, 2022	-	36	746	ND	ND	ND	ND	ND	ND	ND	740
	2	August 18, 2022	-	29	590	ND	ND	ND	39	ND	39	39	600
	4	August 19, 2022	1	-	1,750	ND	ND	ND	1100	740	1100	1840	2200
	6	August 19, 2022	2	239	2,489	ND	ND	ND	400	240	400	640	1700
	8	August 19, 2022	0	75	578	ND	ND	ND	ND	ND	ND	ND	430
BH22-02	0	August 18, 2022	-	25	17	ND	ND	ND	ND	ND	ND	ND	86
	2	August 18, 2022	-	26	73	ND	ND	ND	ND	ND	ND	ND	110
BH22-03	0	August 18, 2022	-	26	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 18, 2022	-	24	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH22-04	0	August 19, 2022	0	-	718	ND	ND	ND	25	ND	25	25	730
	2	August 19, 2022	0	153	2579	ND	ND	ND	68	51	68	119	2100
	9	September 23, 2022	-	36	573	ND	ND	ND	ND	ND	ND	ND	460
SS20-01	0	November 6, 2020	-	53	ND	ND	ND	ND	ND	ND	ND	ND	ND
SS20-02	0	November 6, 2020	-	20	328	ND	ND	ND	ND	ND	ND	ND	ND
SS20-03	0	November 6, 2020	-	32	ND	ND	ND	ND	ND	ND	ND	ND	ND
SS20-04	0	November 6, 2020	-	17	32	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

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Closure Criteria

Client Name: Devon Energy Production Company, LP
 Site Name: Apache 24 Federal #003
 NMOCD Tracking #: nRM1933039312, 2RP-5711
 Project #: 21E-02816-01
 Lab Reports: 2210785, 2210840, and 2211715

Table 4. Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs

Table 4. Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs													
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)	(mg/kg)
BS22-01	10'	October 13, 2022	0	15	348	ND	ND	ND	ND	ND	ND	ND	220
BS22-02	10'	October 13, 2022	0	127	375	ND	ND	ND	ND	ND	ND	ND	170
BS22-03	10'	October 13, 2022	0	10	185	ND	ND	ND	ND	ND	ND	ND	ND
BS22-04	10'	October 13, 2022	0	131	508	ND	ND	ND	ND	ND	ND	ND	510
BS22-05	10'	October 13, 2022	0	182	325	ND	ND	ND	ND	ND	ND	ND	170
BS22-06	10'	October 13, 2022	0	36	225	ND	ND	ND	ND	ND	ND	ND	120
BS22-07	10'	October 13, 2022	0	40	275	ND	ND	ND	ND	ND	ND	ND	240
BS22-08	10'	October 13, 2022	0	25	450	ND	ND	ND	ND	ND	ND	ND	260
BS22-09	10'	October 13, 2022	0	157	1,000	ND	ND	ND	24	ND	24	24	600
BS22-10	10'	October 13, 2022	0	630	798	ND	ND	ND	1100	710	1100	1810	500
	10.5'	November 9, 2022	2	184	649	ND	ND	ND	ND	ND	ND	ND	600
BS22-11	10'	October 13, 2022	0	29	215	ND	ND	ND	ND	ND	ND	ND	86
BS22-12	10'	October 13, 2022	0	43	368	ND	ND	ND	130	320	130	450	250
BS22-13	10'	October 13, 2022	0	51	293	ND	ND	ND	ND	ND	ND	ND	210
BS22-14	10'	October 13, 2022	0	138	1,405	ND	ND	ND	22	ND	22	22	940
BS22-15	10'	October 13, 2022	0	135	1,015	ND	ND	ND	57	77	57	134	890
BS22-16	10'	October 13, 2022	0	172	520	ND	ND	ND	530	280	530	810	530
BS22-17	10'	October 13, 2022	0	115	463	ND	ND	ND	ND	ND	ND	ND	330
BS22-18	10'	October 13, 2022	0	274	578	ND	ND	ND	170	160	170	330	530
BS22-19	4'	October 13, 2022	0	112	583	ND	ND	ND	ND	ND	ND	ND	570
BS22-20	4'	October 13, 2022	0	680	342	ND	ND	ND	390	970	390	1360	1200
BS22-21	4'	October 13, 2022	0	68	1,318	ND	ND	ND	ND	ND	ND	ND	210
BS22-22	4'	October 13, 2022	0	16	220	ND	ND	ND	ND	ND	ND	ND	63
BS22-23	4'	October 13, 2022	0	18	345	ND	ND	ND	ND	ND	ND	ND	400
BS22-24	4'	October 13, 2022	0	102	1,155	ND	ND	ND	ND	ND	ND	ND	980
BS22-25	4'	October 13, 2022	0	43	1,500	ND	ND	ND	ND	ND	ND	ND	510
BS22-26	4'	October 13, 2022	0	53	788	ND	ND	ND	ND	ND	ND	ND	1700
BS22-27	4'	October 13, 2022	0	100	685	ND	ND	ND	42	61	42	103	710
BS22-28	4'	October 13, 2022	0	44	568	ND	ND	ND	ND	ND	ND	ND	600

Client Name: Devon Energy Production Company, LP
 Site Name: Apache 24 Federal #003
 NMOCD Tracking #: nRM1933039312, 2RP-5711
 Project #: 21E-02816-01
 Lab Reports: 2210785, 2210840, and 2211715

Table 4. Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs

Table 4. Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater 51-100 feet bgs													
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)	(mg/kg)
WS22-01	0-4'	October 14, 2022	0	20	620	ND	ND	ND	ND	ND	ND	ND	310
WS22-02	0-4'	October 14, 2022	0	22	550	ND	ND	ND	ND	ND	ND	ND	390
WS22-03	0-4'	October 14, 2022	0	51	630	ND	ND	ND	ND	ND	ND	ND	220
WS22-04	0-4'	October 14, 2022	0	43	588	ND	ND	ND	ND	ND	ND	ND	240
WS22-05	0-4'	October 14, 2022	0	18	518	ND	ND	ND	ND	ND	ND	ND	260
WS22-06	0-4'	October 14, 2022	0	13	550	ND	ND	ND	ND	ND	ND	ND	220
WS22-07	0-4'	October 14, 2022	0	14	628	ND	ND	ND	ND	ND	ND	ND	ND
WS22-08	0-4'	October 14, 2022	0	16	583	ND	ND	ND	ND	ND	ND	ND	ND
WS22-09	0-4'	October 14, 2022	0	17	245	ND	ND	ND	ND	ND	ND	ND	ND
WS22-10	0-4'	October 14, 2022	0	27	273	ND	ND	ND	ND	ND	ND	ND	ND
WS22-11	0-4'	October 14, 2022	0	15	218	ND	ND	ND	ND	ND	ND	ND	210
WS22-12	0-10'	October 14, 2022	0	44	465	ND	ND	ND	ND	ND	ND	ND	390
WS22-13	0-10'	October 14, 2022	0	21	570	ND	ND	ND	ND	ND	ND	ND	490
WS22-14	0-10'	October 14, 2022	0	20	408	ND	ND	ND	ND	ND	ND	ND	240
WS22-15	0-10'	October 14, 2022	0	56	738	ND	ND	ND	ND	ND	ND	ND	410
WS22-16	0-10'	October 14, 2022	1	69	2,143	ND	ND	ND	ND	ND	ND	ND	2200
	0-10'	November 9, 2022	0	120	488	ND	ND	ND	ND	ND	ND	ND	540
WS22-17	0-10'	October 14, 2022	0	59	2,370	ND	ND	ND	ND	ND	ND	ND	530
WS22-18	4-10'	October 14, 2022	0	65	700	ND	ND	ND	ND	ND	ND	ND	550
WS22-19	4-10'	October 14, 2022	0	63	1,063	ND	ND	ND	ND	ND	ND	ND	630
WS22-20	4-10'	October 14, 2022	0	224	343	ND	ND	ND	ND	ND	ND	ND	230
WS22-21	4-10'	October 14, 2022	0	39	765	ND	ND	ND	ND	ND	ND	ND	63
WS22-22	4-10'	October 14, 2022	0	138	413	ND	ND	ND	41	ND	41	41	470
WS22-23	4-10'	October 14, 2022	0	30	440	ND	ND	ND	ND	ND	ND	ND	250
WS22-24	4-10'	October 14, 2022	0	17	503	ND	ND	ND	ND	ND	ND	ND	210

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NMOCD Remediation Closure Criteria

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Closure Criteria

Bold and blue shaded indicates re-collected sample results inside NMOCD 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 Department

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

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

Incident ID	NRM1933039312
District RP	2RP-5711
Facility ID	
Application ID	pRM1933038579

Release Notification COXOS-191023-C-1410

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Amanda T. Davis	Contact Telephone 575-748-0176
Contact email amanda.davis@dvn.com	Incident # (assigned by OCD)
Contact mailing address 6488 Seven Rivers HWY	

Location of Release Source

Latitude 32.37570 Longitude -103.82624
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Apache 24 I Federal 3	Site Type Oil
Date Release Discovered 10/6/2019	API# (if applicable) 30-015-33080

Unit Letter	Section	Township	Range	County
I	24	22S	30E	Eddy

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

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 60	Volume Recovered (bbls) 60
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release The sight glass on the production heater broke causing fluid release. Spill calculations 30'x54'x2.5".

Incident ID	NRM1933039312
District RP	2RP-5711
Facility ID	
Application ID	pRM1933038579

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? This is considered a major release because it is over 25 BBLS.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was not given.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: Kendra DeHoyos	Title: EHS Associate
Signature: <u>Kendra DeHoyos</u>	Date: <u>10/9/2019</u>
email: <u>kendra.dehoyos@dvn.com</u>	Telephone: <u>575-748-3371</u>
<u>OCD Only</u>	
Received by: <u>Ramona Marcus</u>	Date: <u>11/26/20219</u>

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	nRM1933039312
District RP	2RP-5711
Facility ID	30-015-33080
Application ID	

Release Notification

Responsible Party

Responsible Party Harvard Petroleum Company, LLC	OGRID 10155
Contact Name Jeff Harvard	Contact Telephone 575-208-7135
Contact email jharvard@hpcnm.com	Incident # nRM1933039312
Contact mailing address P.O. Box 936 Roswell, NM 88202	

Location of Release Source

Latitude 32.37571 Longitude -103.82624
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Apache 24 I Federal #003	Site Type Oil
Date Release Discovered October 26, 2019	API# 30-015-33080

Unit Letter	Section	Township	Range	County
I	24	22S	30E	Eddy

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

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls) 60	Volume Recovered (bbls) 60
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The sight glass on the production heater broke causing fluid release. Spill calculations 30'x54'x2.5".

State of New Mexico
Oil Conservation Division

Incident ID	nRM1933039312
District RP	2RP-5711
Facility ID	30-015-33080
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? This is considered a major release because it is over 25 BBLs.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Immediate notice was not given.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Jeff Harvard</u>	Title: <u>President and Manager</u>
Signature: _____	Date: _____
email: <u>jharvard@hpcnm.com</u>	Telephone: <u>575-208-7135</u>
<u>OCD Only</u> Received by: _____ Date: _____	

Incident ID	nRM1933039312
District RP	2RP-5711
Facility ID	30-015-33080
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>51-100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

<p>Characterization Report Checklist: <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.<input checked="" type="checkbox"/> Field data<input checked="" type="checkbox"/> Data table of soil contaminant concentration data<input checked="" type="checkbox"/> Depth to water determination<input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release<input checked="" type="checkbox"/> Boring or excavation logs<input checked="" type="checkbox"/> Photographs including date and GIS information<input checked="" type="checkbox"/> Topographic/Aerial maps<input checked="" type="checkbox"/> Laboratory data including chain of custody

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

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	nRM1933039312
District RP	2RP-5711
Facility ID	30-015-33080
Application ID	

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

Printed Name: Jeff Harvard Title: President and Manager

Signature: _____ Date: _____

email: jharvard@hpcnm.com Telephone: 575-208-7135

OCD Only

Received by: _____ Date: _____

Incident ID	nRM1933039312
District RP	2RP-5711
Facility ID	30-015-33080
Application ID	

Closure

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

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

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

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

Printed Name: Jeff Harvard Title: President and Manager

Signature: _____ Date: _____

email: jharvard@hpcnm.com Telephone: 575-208-7135

OCD Only

Received by: _____ Date: _____

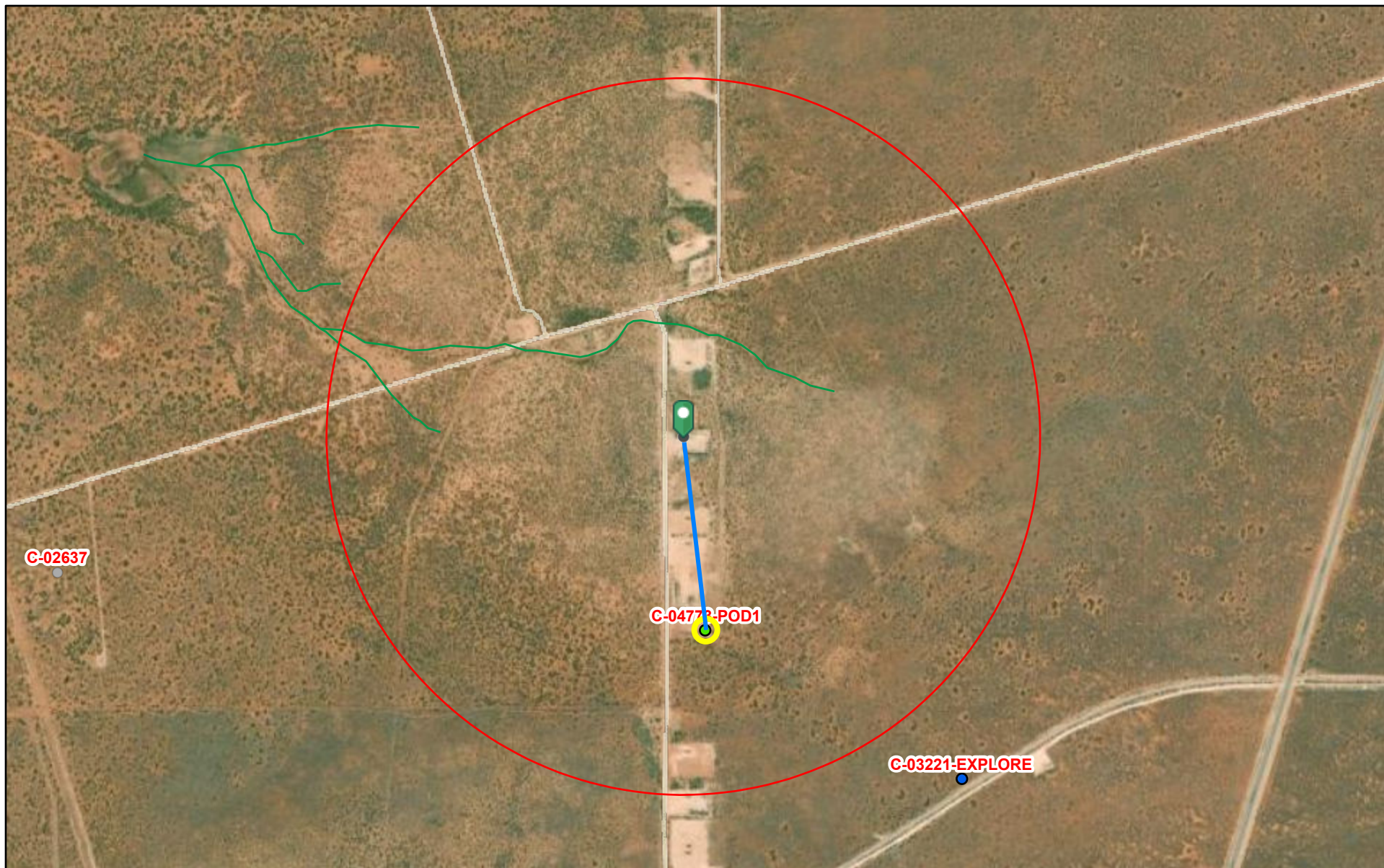
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance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

Closure Approved by: _____ Date: _____

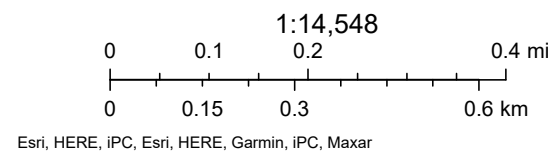
Printed Name: _____ Title: _____

APPENDIX B – Closure Criteria Research Documentation

Apache 24 Federal 003 - 0.27 miles away from DTGW



1/25/2024, 9:13:32 AM





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03221 EXPLORE	CUB	ED		1	2	1	30	22S	31E	610995	3581935*	992	651		
C 02637	CUB	ED		1	3	3	24	22S	30E	608950	3582377*	1445	759		
C 02950 EXPL	CUB	ED		4	2	4	23	22S	30E	608740	3582576*	1623	845		
C 02683	CUB	ED		3	1	1	20	22S	31E	612184	3583356*	1940	840		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 610359.25

Northing (Y): 3582697

Radius: 2000

*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.

1/21/24 11:13 AM

Page 1 of 1







WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)										(R=POD has been replaced and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE) C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)									
WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 6416	q 4	q Sec	q Tws	Rng	X	Y	Distance	
C 04773	CUB	MON		0 DEVON ENERGY RESOURCES	ED	C 04773 POD1	NA				4	4	4	24	22S	30E	610415	3582262 	437
C 03221	CUB	MON		0 U.S. DEPART OF ENERGY	ED	C 03221 EXPLORE				Artesian	1	2	1	30	22S	31E	610995	3581935* 	992
C 02637	CUB	MON		0 U.S. DEPARTMENT OF ENERGY	ED	C 02637					1	3	3	24	22S	30E	608950	3582377* 	1445
C 02950	CUB	EXP		0 US DEPT OF ENERGY CARLSBAD FIELD OFFICE, WIPP	ED	C 02950 EXPL				Shallow	4	2	4	23	22S	30E	608740	3582576* 	1623
C 04731	CUB	MON		0 XTO ENERGY, INC	ED	C 04731 POD1	NA				1	2	3	25	22S	30E	609329	3581147 	1860
C 02683	CUB	MON		0 SANDIA NATIONAL LABORATORIES	ED	C 02683					3	1	1	20	22S	31E	612184	3583356* 	1940

Record Count: 6

UTMNAD83 Radius Search (in meters):

Easting (X): 610359.25

Northing (Y): 3582697

Radius: 2000

Sorted by: Distance


*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.



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE)				(quarters are smallest to largest)		(NAD83 UTM in meters)	
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	C 04773 POD1	4	4	4	24	22S	30E	610415	3582262 
x									
Driller License:	1833	Driller Company:				VISION RESOURCES, INC			
Driller Name:	JASON MALEY								
Drill Start Date:	12/15/2023	Drill Finish Date:				12/15/2023	Plug Date:	12/21/2023	
Log File Date:	01/12/2024	PCW Rev Date:				Source:			
Pump Type:	Pipe Discharge Size:				Estimated Yield:				
Casing Size:	Depth Well:				55 feet	Depth Water:			
x									

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.

1/26/24 9:15 AM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer


Water Right Summary

**WR File Number:** C 04773**Subbasin:** CUB**Cross Reference:** -**Primary Purpose:** MON MONITORING WELL**Primary Status:** PMT PERMIT**Total Acres:****Subfile:** -**Header:** -**Total Diversion:** 0**Cause/Case:** -**Owner:** DEVON ENERGY RESOURCES**Contact:** DALE WOODALL

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
			1	2					
get images	751177	EXPL	2023-09-19	PMT	APR	C-4773 POD1	T	0	0

Current Points of Diversion

(NAD83 UTM in meters)													
POD Number	Well Tag	Source	Q								Other Location Desc		
			64	Q	16	Q	4	Sec	Tws	Rng		X	Y
C 04773 POD1	NA		4	4	4	24	22	S	30	E	610415	3582262	

Source

Acres	Diversion	CU	Use	Priority	Source Description
0	0		MON		GW

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.

12/12/23 11:52 AM

WATER RIGHT SUMMARY



New Mexico Office of the State Engineer

Transaction Summary

EXPL Permit To Explore

Transaction Number: 751177 Transaction Desc: C-4773 POD1 File Date: 09/15/2023

Primary Status: PMT Permit
Secondary Status: APR Approved
Person Assigned: *****
Applicant: DEVON ENERGY RESOURCES
Contact: DALE WOODALL

Events

Date	Type	Description	Comment	Processed By
09/15/2023	APP	Application Received	*	*****
09/15/2023	TEC	Technical Report	*PLUG PLAN C-4773	*****
09/19/2023	FTN	Finalize non-published Trans.		*****
10/26/2023	QAT	Quality Assurance Completed	SQ2	*****
10/31/2023	QAT	Quality Assurance Completed	IMAGE	*****

Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 04773	0	0		MON MONITORING WELL
**Point of Diversion				
C 04773 POD1		610415	3582262	

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

SHOULD THE PERMITTEE CHANGE THE PURPOSE OF USE TO OTHER THAN MONITORING PURPOSES, AN APPLICATION SHALL BE ACQUIRED FROM THE OFFICE OF THE STATE ENGINEER.

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

Approval Code: A - Approved

Action Date: 09/19/2023

Log Due Date: 09/18/2024

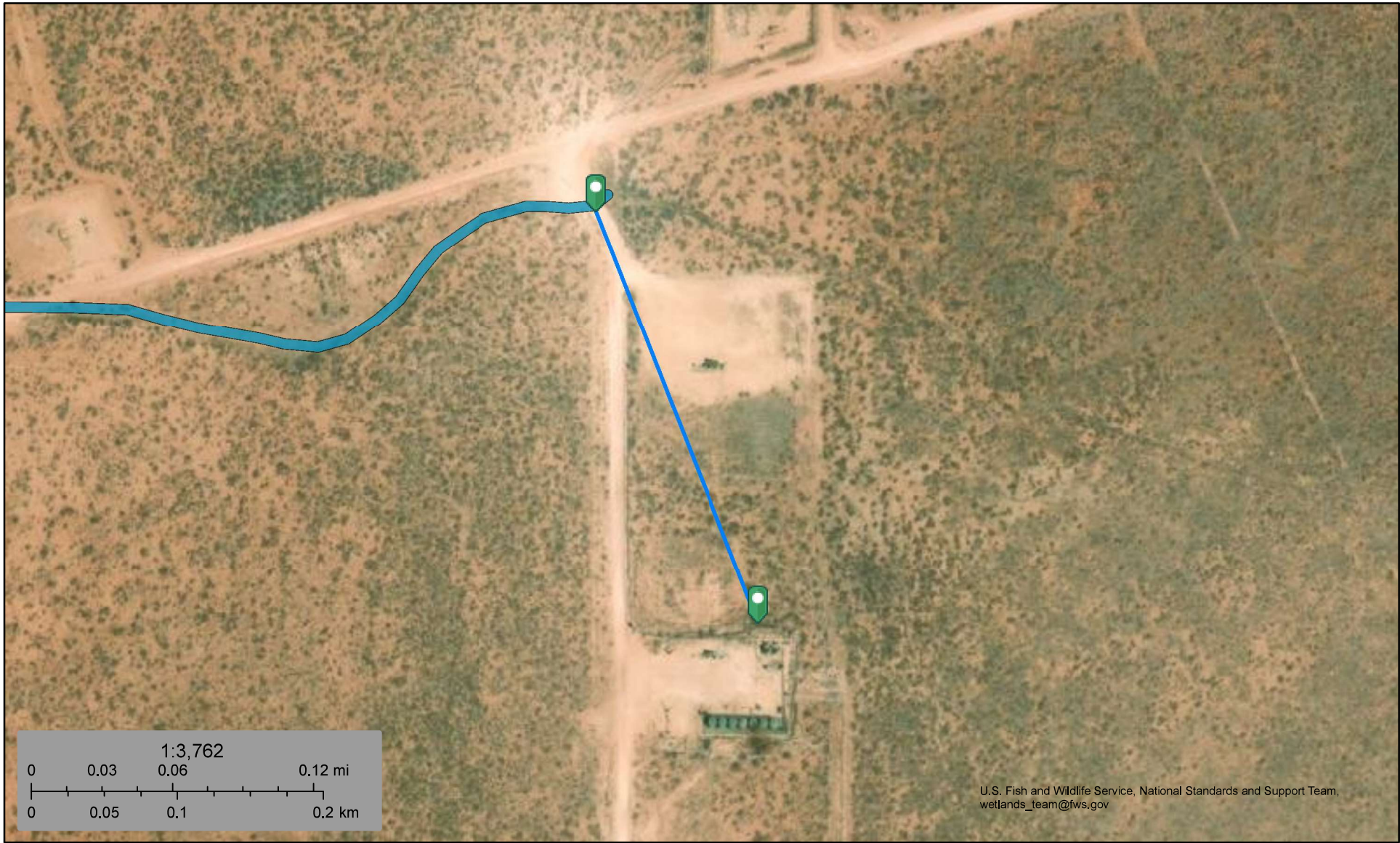
State Engineer: Mike A. Hamman, P.

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.

12/12/23 11:56 AM




TRANSACTION
SUMMARY

Intermittent 837 feet

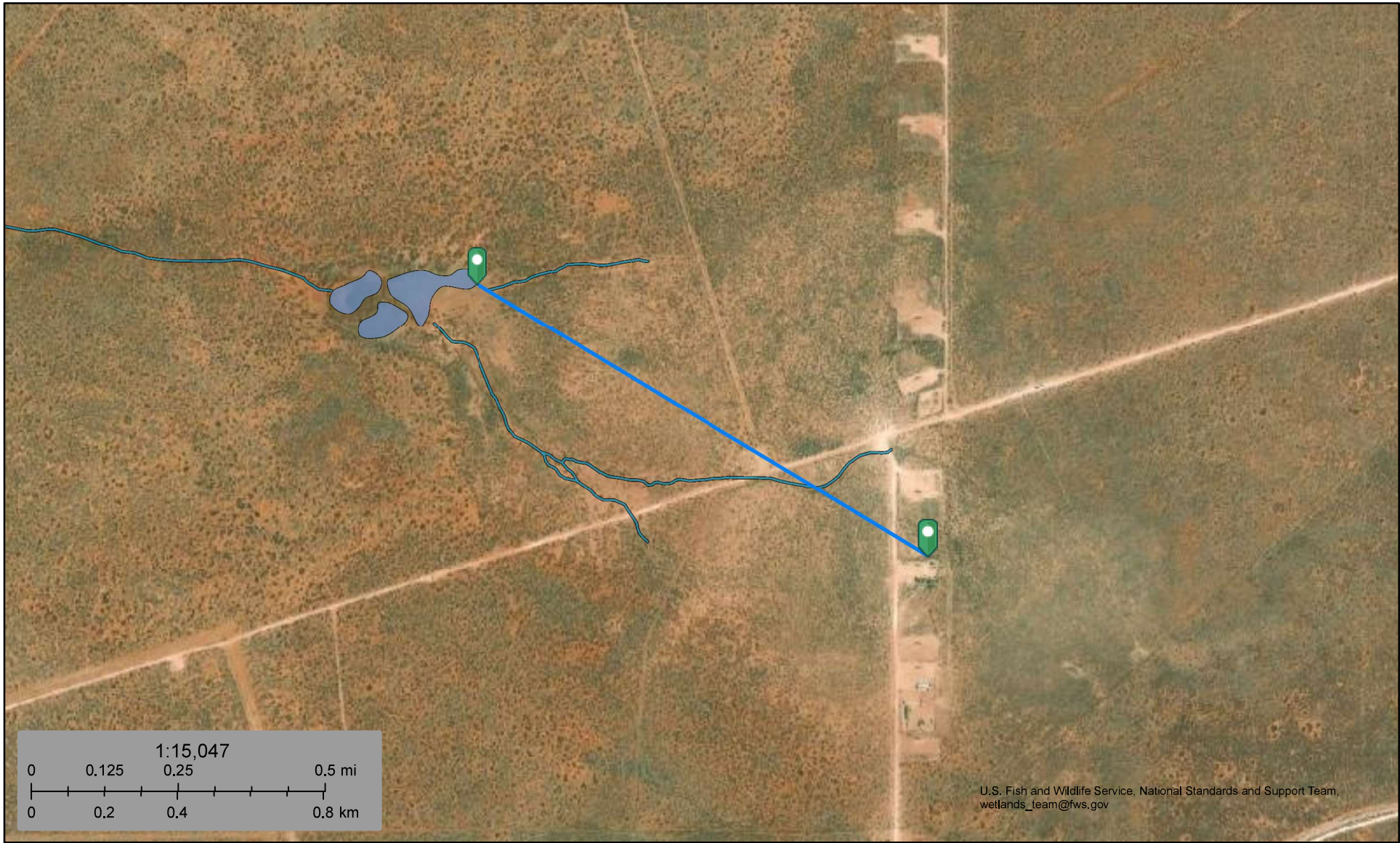


June 12, 2023

Wetlands_Alaska

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



June 12, 2023

Wetlands_Alaska

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
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Apache 24 I Fed 3

Nearest Residence 16,002 ft.

Legend

- Feature 1
- Waste Isolation Pilot Plant

32.375700 -103.826240

Residence



2 km



New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C	03221 EXPLORE	1	2	1	30	22S	31E	610995	3581935*

Driller License:	1184	Driller Company:	WEST TEXAS WATER WELL SERVICE	
Driller Name:	KEITH, LARRY			
Drill Start Date:	05/30/2006	Drill Finish Date:	06/16/2006	Plug Date:
Log File Date:	06/30/2006	PCW Rev Date:		Source: Artesian
Pump Type:		Pipe Discharge Size:		Estimated Yield:
Casing Size:	12.75	Depth Well:	651 feet	Depth Water:

*UTM location was derived from PLSS - see Help

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6/12/23 5:45 AM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Water Right Summary

WR File Number:

C 03221

Subbasin:

CUB

Cross Reference:

-

Primary Purpose:

MON MONITORING WELL

Primary Status:

PMT PERMIT

Total Acres:

Subfile:

-

Header:

-

Total Diversion:

0

Cause/Case:

-

Owner:

U.S. DEPART OF ENERGY


Contact:

HAROLD JOHNSON

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
			1	2					
337501	EXPL	2005-07-26	PMT	LOG	C 03221 MONITORING WELL	T	0	0	

Current Points of Diversion

POD Number	Well Tag	Source	Q (NAD83 UTM in meters)				X	Y	Other Location Desc
			64	Q16	Q4	Sec	Tws	Rng	
C 03221 EXPLORE		Artesian	1	2	1	30	22S	31E	610995 3581935* 

An () after northing value indicates UTM location was derived from PLSS - see Help

Source

Acres	Diversion	CU	Use	Priority	Source Description
0	0		MON		GW

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New Mexico Office of the State Engineer

Water Right Summary


[get image list](#)

WR File Number: C 02734 **Subbasin:** C **Cross Reference:** -
Primary Purpose: STK 72-12-1 LIVESTOCK WATERING
Primary Status: PMT PERMIT
Total Acres: **Subfile:** - **Header:** -
Total Diversion: 3 **Cause/Case:** -
Owner: BUREAU OF LAND MANAGEMENT
Contact: SUSAN BRITT
Owner: THE JIMMY MILLS GST TRUST
Contact: STACY MILLS
Owner: THE JIMMY MILLS 2005 GST TRUST
Contact: STACY MILLS

Documents on File

	Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
				1	2					
get images	466432	COWNF	2009-02-02	CHG	PRC	C 02734	T		3	
get images	466431	72121	2000-09-18	PMT	APR	C 02734	T		3	

Current Points of Diversion

POD Number	Well Tag	Source	Q				(NAD83 UTM in meters)		Other Location Desc
			64Q16Q4	Sec	Tws	Rng	X	Y	
C 02734			1	4	4	35 22S 30E	608580	3579158*	

An () after northing value indicates UTM location was derived from PLSS - see Help

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1/25/24 10:12 AM

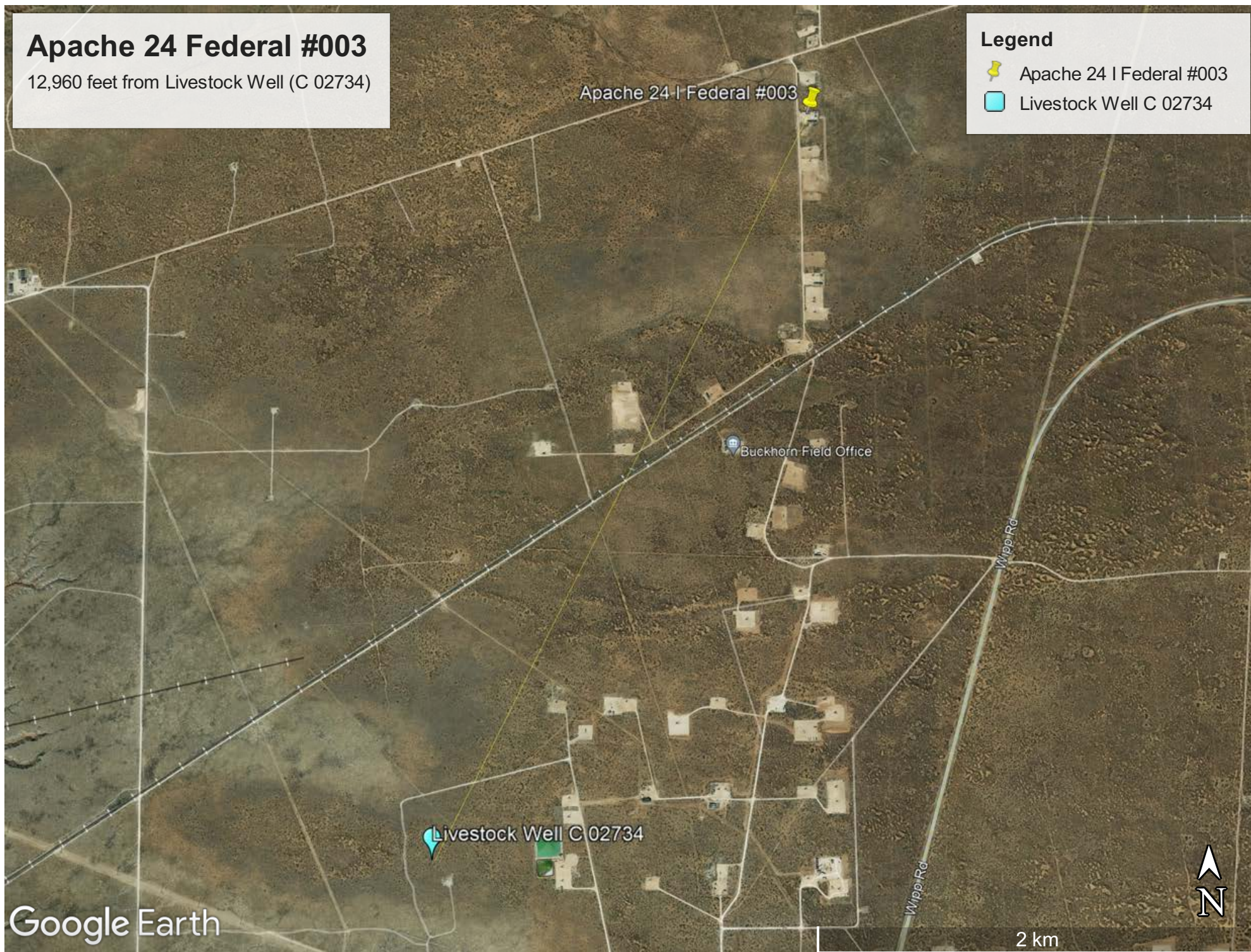
WATER RIGHT SUMMARY

Apache 24 Federal #003

12,960 feet from Livestock Well (C 02734)

Legend

-  Apache 24 I Federal #003
-  Livestock Well C 02734





Wetland 13,152 feet



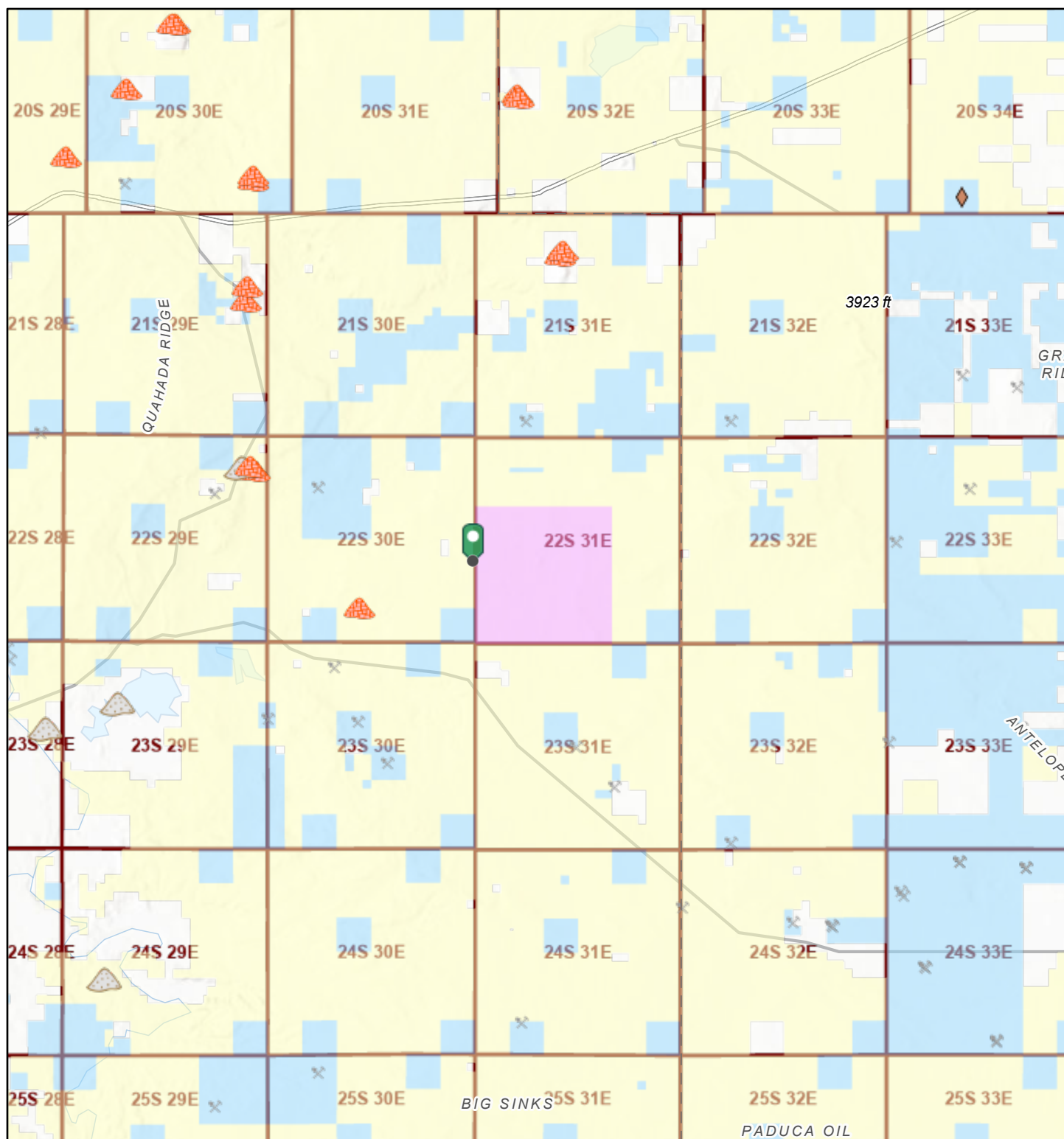
June 12, 2023

Wetlands_Alaska

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

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Mines near Apache 24 Federal #003



1/21/2024, 11:47:14 AM

1:310,362

Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Industrial Minerals (Other)
- Potash

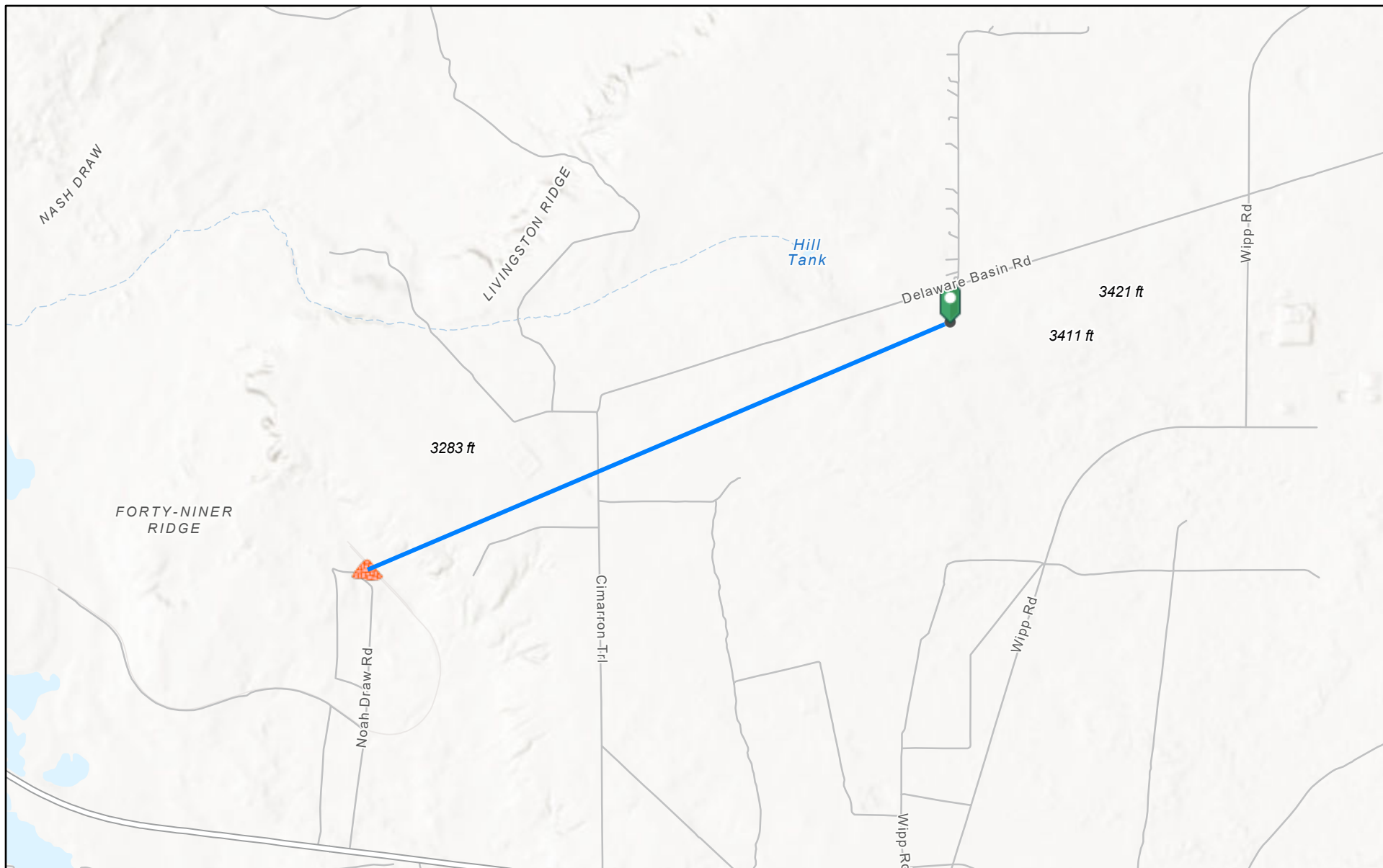
- Salt
- Land Ownership
- BLM
- DOE
- P
- S
- PLSS Townships

0 2.25 4.5 9 mi
0 3.5 7 14 km

U.S. BLM, Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, Esri, NASA, NGA, USGS, BLM

EMNRD MMD GIS Coordinator

Apache 24 Federal 003 - 18,815 feet from mine



1/26/2024, 6:55:27 AM

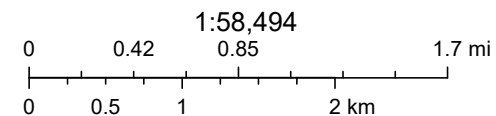
Registered Mines



Potash



Aggregate, Stone etc.

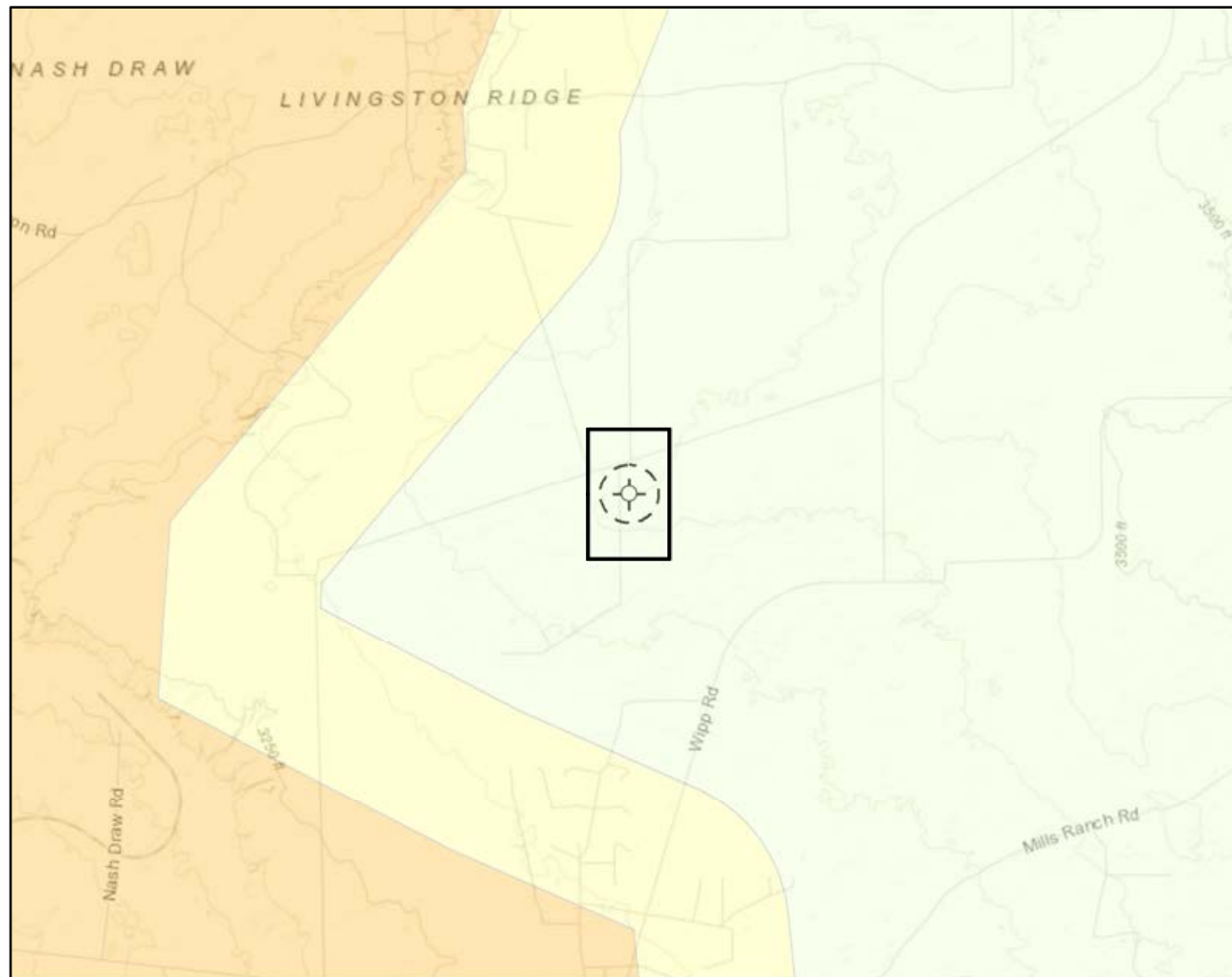


Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS, Esri,

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: G:\Projects\US PROJECTS\Devon Energy Corporation\20E-00141\006 - Apache 24\event 1\FigX Karst Potential Map Apache 24 Fed #003.mxd



Karst Potential

- Critical
- High
- Medium
- Low



Site



Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.



Map Center:
Lat/Long: 32.375700, -103.826240

NAD 1983 UTM Zone 13N
Date: Mar 05/21



**Karst Potential Map
Apache 24 I Federal #003**

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 2019; Overview Map - ESRI World Topographic

VERSATILITY. EXPERTISE.

Apache 24 Federal #003

8,300 feet from High Karst

Legend

-  Apache 24 I Federal #003
-  High Karst
-  High Karst

Apache 24 I Federal #003

WORK COMMUTE - V

Google Earth

2 km

National Flood Hazard Layer FIRMette



32°22'47.71"N



USGS The National Map: Orthoimagery, Data refreshed April, 2019.

1:6,000

32°22'17.33"N

Released to Imaging: 4/29/2024 3:19:45 PM

Legend

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

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



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

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



The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/30/2020 at 7:48:06 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.

Apache 24 Federal #003

27,634 feet from FEMA Zone A

Legend

-  FEMA Zone A
-  North Pure Gold 9 Federal 001

Apache 24 I Federal #003

Official Scenic Historic Marker Project Gnome

Google Earth

7 km



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Eddy Area, New Mexico



January 30, 2020

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

Custom Soil Resource Report

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

Soil Map

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


Custom Soil Resource Report Soil Map



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: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 17, 2017

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
PA	Pajarito loamy fine sand, 0 to 3 percent slopes, eroded	2.4	100.0%
Totals for Area of Interest		2.4	100.0%

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, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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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

Eddy Area, New Mexico**PA—Pajarito loamy fine sand, 0 to 3 percent slopes, eroded****Map Unit Setting***National map unit symbol:* 1w54*Elevation:* 2,700 to 5,500 feet*Mean annual precipitation:* 5 to 15 inches*Mean annual air temperature:* 57 to 70 degrees F*Frost-free period:* 180 to 250 days*Farmland classification:* Not prime farmland**Map Unit Composition***Pajarito and similar soils:* 98 percent*Minor components:* 2 percent*Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Pajarito****Setting***Landform:* Dunes, interdunes, plains*Landform position (three-dimensional):* Side slope*Down-slope shape:* Convex, linear*Across-slope shape:* Convex, linear*Parent material:* Mixed alluvium and/or eolian sands**Typical profile***H1 - 0 to 13 inches:* loamy fine sand*H2 - 13 to 36 inches:* fine sandy loam*H3 - 36 to 60 inches:* fine sandy loam**Properties and qualities***Slope:* 0 to 3 percent*Depth to restrictive feature:* More than 80 inches*Natural drainage class:* Well drained*Runoff class:* Very low*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 in profile:* 15 percent*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)*Sodium adsorption ratio, maximum in profile:* 1.0*Available water storage in profile:* Moderate (about 7.9 inches)**Interpretive groups***Land capability classification (irrigated):* 2e*Land capability classification (nonirrigated):* 7e*Hydrologic Soil Group:* A*Ecological site:* Loamy Sand (R042XC003NM)*Hydric soil rating:* No

Custom Soil Resource Report

Minor Components

Wink

Percent of map unit: 1 percent

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

Berino

Percent of map unit: 1 percent

Ecological site: Loamy Sand (R042XC003NM)

Hydric soil rating: No

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Custom Soil Resource Report

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Ecological site R070BD003NM

Loamy Sand

Accessed: 04/27/2023

General information

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

Figure 1. Mapped extent

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

Associated sites

R070BD004NM	Sandy Sandy
R070BD005NM	Deep Sand Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

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

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

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

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

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

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

Characteristic soils are:

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

Table 4. Representative soil features

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

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

Ecological dynamics

Overview

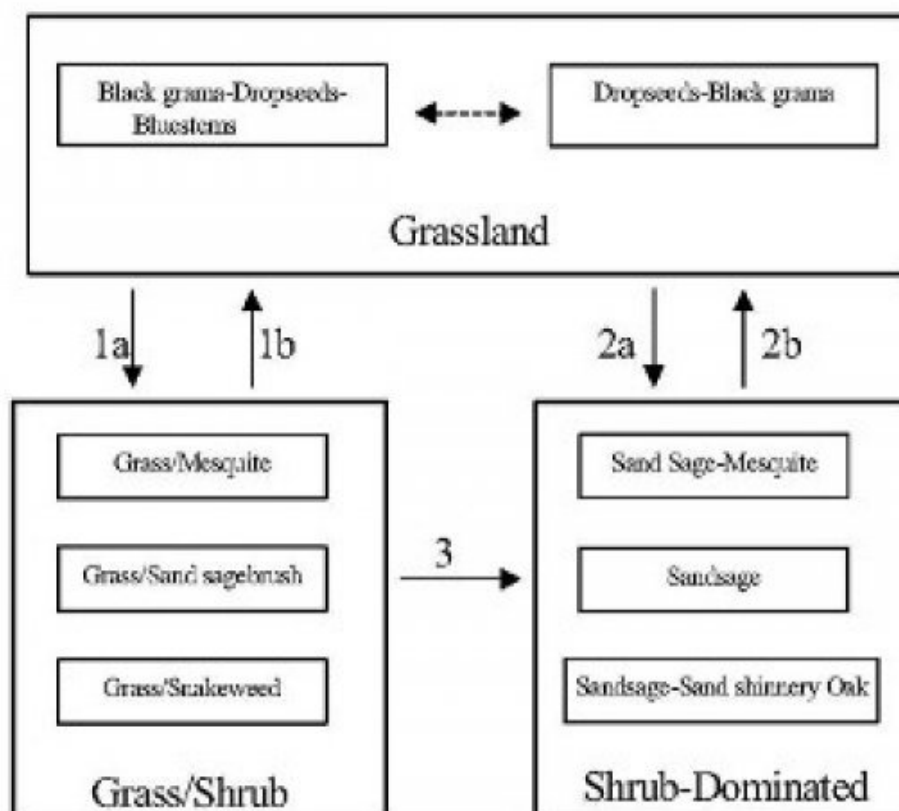
The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured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

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

State and transition model

Plant Communities and Transitional Pathways (diagram):

MLRA-42, SD-3, Loamy Sand



1a. Drought, over grazing, fire suppression.

1b. Brush control, prescribed grazing

2.a Severe loss of grass cover, fire suppression, erosion.

2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

State 1

Historic Climax Plant Community

Community 1.1

Historic Climax Plant Community

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

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

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

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub



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

State 3

Shrub Dominated

Community 3.1

Shrub Dominated

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

aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state. Key indicators of approach to transition: • Severe loss of grass species cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite abundance Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state. Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite. Key indicators of approach to transition: • Continual loss of dropseeds/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 (%)
Grass/Grasslike					
1	Warm Season			61–123	
	little bluestem	SCSC	<i>Schizachyrium scoparium</i>	61–123	–
2	Warm Season			37–61	
	sand bluestem	ANHA	<i>Andropogon hallii</i>	37–61	–
3	Warm Season			37–61	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	37–61	–
	silver bluestem	BOSA	<i>Bothriochloa saccharoides</i>	37–61	–
4	Warm Season			123–184	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	123–184	–
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	123–184	–
5	Warm Season			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	Warm Season			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	Warm Season			61–123	
	hooded windmill grass	CHCU2	<i>Chloris cucullata</i>	61–123	–
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	61–123	–
9	Other Perennial Grasses			37–61	
	Grass, perennial	2GP	<i>Grass, perennial</i>	37–61	–
Shrub/Vine					
8	Warm Season			37–61	
	New Mexico feathergrass	HENE5	<i>Hesperostipa neomexicana</i>	37–61	–
	giant dropseed	SPGI	<i>Sporobolus giganteus</i>	37–61	–
10	Shrub			61–123	

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

Animal community

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

Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson's hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

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

Hydrologic Interpretations

Soil Series Hydrologic Group

Berino B

Kinco A

Maljamar B

Pajarito B

Palomas B

Wink B

Pyote A

Recreational uses

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

Wood products

This site has no potential for wood products.

Other products

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

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index Ac/AUM

100 - 76 2.3 – 3.5

75 – 51 3.0 – 4.5

50 – 26 4.6 – 9.0

25 – 0 9.1 +

Inventory data references

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

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Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

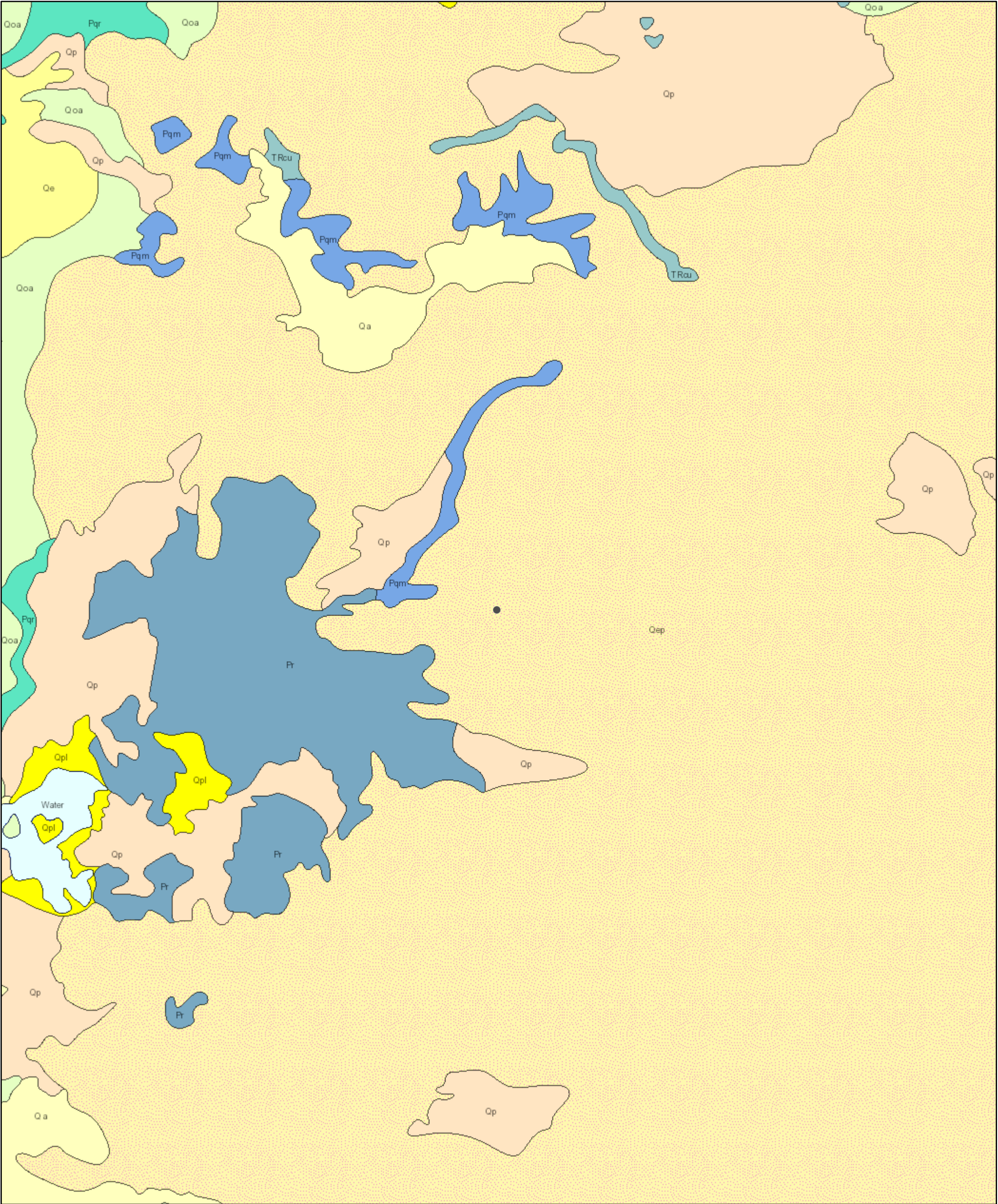
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):

5. Number of gullies and erosion associated with gullies:

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

7. **Amount of litter movement (describe size and distance expected to travel):**
-
8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**
-
11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**
-
12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**
- Dominant:
- Sub-dominant:
- Other:
- Additional:
-
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**
-
14. **Average percent litter cover (%) and depth (in):**
-
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**
-
16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**
-

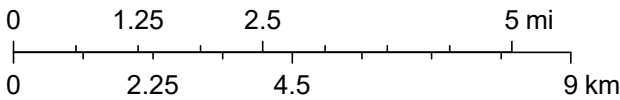
Apache 24 I Fed 3 Geology



6/11/2023, 7:42:18 PM

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

1:144,448



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:	8/18/2022
Site Location Name:	Apache 24 I Fed #3	Report Run Date:	8/18/2022 10:26 PM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Apache 24 I Fed #3	Project Owner:	Tom Bynum
Project Reference #	Spills 10/6/2019 & 12/25/2019	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	8/18/2022 9:49 AM
Departed Site	8/18/2022 3:24 PM

Field Notes

- 9:50** Arrived at site and filled out safety paperwork.
- 9:50** Met with contractor onsite to discuss site delineation.
- 15:04** Contractor on-site has removed most equipment within the release area. Also, contractor wasn't able to get heavy equipment to help dig vertical boreholes. Equipment will be brought in tomorrow.
- 15:04** Done collecting horizontal boreholes. 3 new boreholes were stepped out from historical boreholes and are labeled as the following respectively: BH22-01 @ 0-2ft, BH22-02 @ 0-2ft, and BH22-03 @ 0-2ft.
- 15:08** Field screened soil samples with EC probe and PetroFLAG. Most sample came back clean for both chlorides and TPH except for BH22-01 @ 0ft. BH22-01 @ 0ft had a chloride reading of 749ppm. Will still send this sample to lab along with the others to get a more accurate testing.
- 15:09** Placed all soil samples into jars and will send to lab. Done for the day, will continue tomorrow.

Next Steps & Recommendations

- 1 Dig vertical boreholes and initiate excavation.

Daily Site Visit Report



Daily Site Visit Report



Site Photos

Viewing Direction: Southwest



BH22-01 @ 0-2ft

Viewing Direction: North



BH22-02 @ 0-2ft

Viewing Direction: East



BH22-03 @ 0-2ft

Viewing Direction: Northeast



Southwest corner of release area



Daily Site Visit Report

Viewing Direction: Northwest



Southeast corner of release area

Viewing Direction: Southwest



Northeast corner of release area

Viewing Direction: Southeast



Northwest corner of release area

Viewing Direction: South



Other pipe equipment that might require removal



Daily Site Visit Report

Viewing Direction: West



New tank equipment location

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 
Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	8/19/2022
Site Location Name:	Apache 24 I Fed #3	Report Run Date:	8/19/2022 9:23 PM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Apache 24 I Fed #3	Project Owner:	Tom Bynum
Project Reference #	Spills 10/6/2019 & 12/25/2019	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	8/19/2022 8:03 AM
Departed Site	8/19/2022 2:11 PM

Field Notes

8:05 Arrived at site and filled out safety paperwork

10:50 Done collecting vertical boreholes and will begin field screening

13:19 All vertical boreholes were extended at depths of 4ft, 6ft, and 8ft. All were labeled as BH20-01, 02, and 04 @ 4-8ft.

13:21 Done field screening vertical boreholes. Current sampling design should be enough evidence to create a work plan. All soil samples were placed into jars and will be sent to lab. Started DSS and finished of DFR.

Next Steps & Recommendations

- 1 Create work plan and initiate excavation

Daily Site Visit Report



Site Photos

Viewing Direction: South



BH20-01 @ 4-8ft

Viewing Direction: North



BH20-02 @ 4-8ft

Viewing Direction: East



BH20-04 @ 4-8ft

Viewing Direction: South



BH22-01 @ 4-8ft



Daily Site Visit Report

Viewing Direction: South



BH22-04 @ 0-2ft

Viewing Direction: Southeast



Northwest corner of release area

Viewing Direction: Southwest



Northeast corner of release area

Viewing Direction: Northwest



Southeast corner of release area



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 
Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	10/13/2022
Site Location Name:	Apache 24 I Fed #3	Report Run Date:	10/14/2022 1:00 AM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Apache 24 I Fed #3	Project Owner:	Tom Bynum
Project Reference #	Spills 10/6/2019 & 12/25/2019	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	10/13/2022 9:18 AM
Departed Site	10/13/2022 6:00 PM

Field Notes

- 9:49** Arrived at site and filled out safety paperwork.
- 9:50** On site to initiate confirmation sampling of the excavation. Cannot start sampling until 48hr notice clears at approximately 11:30am.
- 9:51** Meanwhile will map out a grid on Collector to get an idea of how many samples are needed.
- 11:31** Mapped out points on Collector. Will now start to gather soil samples.
- 13:15** Done collecting base soil samples. Collected a total of 28 base samples from the 10ft and 4ft excavation combined.
- 13:47** Started field screening soil samples for Chlorides,TPH and VOCs using Titration kit, PetroFLAG kit, and PID Tiger.
- 17:06** Done field screening soil samples. Placed soil samples into jars and filled out DSS.
- 17:37** Done for the day will gather wall samples tomorrow

Next Steps & Recommendations

1



Daily Site Visit Report

Site Photos

Viewing Direction: Northeast



Southwest corner of excavation

Viewing Direction: East



Southern portions of excavation

Viewing Direction: Northwest



Southeast corner of excavation

Viewing Direction: Southwest



Northeast corner of excavation



Daily Site Visit Report

Viewing Direction: Southeast



Northwest corner of excavation

Viewing Direction: East



Northern portions of excavation

Viewing Direction: West



Soil samples in jars

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 
Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	10/14/2022
Site Location Name:	Apache 24 I Fed #3	Report Run Date:	10/14/2022 11:47 PM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Apache 24 I Fed #3	Project Owner:	Tom Bynum
Project Reference #	Spills 10/6/2019 & 12/25/2019	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	10/14/2022 9:08 AM
Departed Site	10/14/2022 4:33 PM

Field Notes

- 9:14** Arrived at site and filled out safety paperwork.
- 9:19** On site to collect wall samples for confirmation. Wall samples include all walls under 4ft mark and walls above 4ft. All Wall samples must comply under NMOCD's criteria for water depth between 50ft to 100ft.
- 9:47** Started collecting wall samples.
- 11:19** Done collecting wall samples. Collected a total of 24 samples for all walls.
- 11:44** Will begin field screening soil samples for Chlorides, TPH, and VOCs using Titration kit, PetroFLAG kit, and PID Tiger.
- 16:22** Done field screening soil samples. All were under NMOCD's criteria for each respective depth. Placed all soil samples into jars and wrote DSS. Also added points to Collector.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: Northeast



Southwest corner of excavation

Viewing Direction: East



Southern portions of excavation

Viewing Direction: Northwest



Southeast corner of excavation





Viewing Direction: North



Eastern walls of excavation



Daily Site Visit Report

<p>Viewing Direction: Southwest</p>  <p><small>Excavation Photo - 2 Viewing Direction: Southwest Date: 10/14/2022 11:47 AM Camera: Nikon D3200 18-55mm Shutter Speed: 1/2000 ISO: 1600</small></p> <p>Northeast corner of excavation</p>	<p>Viewing Direction: West</p>  <p><small>Excavation Photo - 3 Viewing Direction: West Date: 10/14/2022 11:47 AM Camera: Nikon D3200 18-55mm Shutter Speed: 1/2000 ISO: 1600</small></p> <p>Northern portions of excavation</p>
<p>Viewing Direction: North</p>  <p><small>Excavation Photo - 4 Viewing Direction: North Date: 10/14/2022 11:47 AM Camera: Nikon D3200 18-55mm Shutter Speed: 1/2000 ISO: 1600</small></p> <p>Western portions of excavation</p>	<p>Viewing Direction: Southeast</p>  <p><small>Excavation Photo - 5 Viewing Direction: Southeast Date: 10/14/2022 11:47 AM Camera: Nikon D3200 18-55mm Shutter Speed: 1/2000 ISO: 1600</small></p> <p>Northwest corner of excavation</p>



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 
Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	10/23/2023
Site Location Name:	Apache 24 I Fed #3	Report Run Date:	10/23/2023 10:48 PM
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	10/23/2023 8:30 AM
Departed Site	10/23/2023 10:00 AM

Field Notes

8:39 Arrive on site, field driller arrive on site, begin writing safety paperwork while driller get set up

8:49 Held safety meeting. All field staff sign safety paperwork

8:53 Field crew begins drilling down to 55 ft bgs. Main Objective is to make sure there is no water at that depth

9:31 Well is drilled down to 55 ft bgs. Drillers begin setting casing down well

9:40 Well depth is measured via interface probe. Well depth is 55 get bgs. No water in well

9:43 Well casing has been sealed with a cap and cone

9:54 Pack up equipment and head off site to our next location (North Pure Gold 4 federal #003)

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: North



Picture taken north facing south. Begin drilling water well on site to 55 ft bgs

Viewing Direction: Southeast



Picture taken southeast facing northwest. Drill is to the south of me, angle of image facing pump jack near on pad area

Viewing Direction: West



Photo taken west facing east. Encompasses entire drill site and pumpjack

Viewing Direction: South



Photo taken south facing north. Facing site placard name of pumpjack



Daily Site Visit Report

Viewing Direction: North



Photo taken north facing south. Well driller down to 55 ft bgs. Drillers begin setting casing down well

Viewing Direction: South



Photo taken south facing north. Measuring well depth of 55 ft bgs. No water in well

Viewing Direction: North



Photo taken north facing south. Casing height of well.

Viewing Direction: North



Photo taken north facing south. Well casing has been sealed with a cone and top

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Alexis Castro

Signature:


Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	10/28/2023
Site Location Name:	Apache 24 I Fed #3	Report Run Date:	10/28/2023 9:17 PM
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	10/28/2023 10:15 AM
Departed Site	10/28/2023 10:45 AM

Field Notes

10:18 On site. JSAs completed.

10:41 61.1-2.3=58.8 feet to bottom of borehole

10:42 Depth to groundwater>58.8 feet

Next Steps & Recommendations

1 Backfill borehole and complete closure report

Daily Site Visit Report



Site Photos

Viewing Direction: South



Borehole location

Viewing Direction: North



Borehole location

Viewing Direction: North



Site placard



Viewing Direction: South



61.1 feet to top of casing



Daily Site Visit Report

Viewing Direction: East	Viewing Direction: South
	
No water present at bottom of borehole	2.3 feet to top of casing

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Sally Carttar

Signature:

A handwritten signature in black ink, consisting of a large, stylized 'S' followed by a cursive 'C' and 'T' that loop together. The signature is written over a thin horizontal line.

Signature

APPENDIX D – Notifications



Dhugal Hanton <vertexresourcegroupusa@gmail.com>

NRM1933039312: Apache 24 i Fed 3 - 48-hr Notification of Confirmation Sampling

2 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Mon, Aug 31, 2020 at 2:38 PM

To: OCD.Enviro@state.nm.us, "CFO_Spill, BLM_NM" <blm_nm_cfo_spill@blm.gov>, Kelsey <KWade@blm.gov>, "Amos, James A" <Jamos@blm.gov>, wesley.mathews@dvn.com, Lupe.Carrasco@dvn.com, amanda.davis@dvn.com, tom.bynum@dvn.com

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled final confirmatory sampling to be conducted at Apache 24 I Fed 3 for the release that occurred on October 6, 2019, incident #NRM1933039312 (2RP-5711).

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

On Thursday, September 3, 2020 at approximately 9:00 a.m., Kevin Smith of Vertex will be onsite to conduct the final confirmatory sampling. He can be reached at 575-988-0871. 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**www.vertex.ca

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Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Mon, Aug 31, 2020 at 2:38 PM

To: ngordon@vertex.ca

----- Forwarded message -----

From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>

Date: Mon, Aug 31, 2020 at 2:38 PM

Subject: NRM1933039312: Apache 24 i Fed 3 - 48-hr Notification of Confirmation Sampling

To: <OCD.Enviro@state.nm.us>, CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>, Kelsey <KWade@blm.gov>, Amos, James A <Jamos@blm.gov>, <wesley.mathews@dvn.com>, <Lupe.Carrasco@dvn.com>, <amanda.davis@dvn.com>, <tom.bynum@dvn.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled final confirmatory sampling to be conducted at Apache 24 I Fed 3 for the release that occurred on October 6, 2019, incident #NRM1933039312 (2RP-5711).

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

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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.

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www.vertex.ca

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Dhugal Hanton <vertexresourcegroupusa@gmail.com>

NRM1933039312: Apache 24 i Fed #003 - 48-hr Notification of Confirmatory Sampling

2 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Tue, Nov 3, 2020 at 12:39 PM

To: "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>, "CFO_Spill, BLM_NM" <blm_nm_cfo_spill@blm.gov>, Kelsey <KWade@blm.gov>, "Amos, James A" <Jamos@blm.gov>

Cc: wesley.mathews@dvn.com, Lupe.Carrasco@dvn.com, amanda.davis@dvn.com, tom.bynum@dvn.com

All,

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled confirmatory sampling to be conducted at Apache 24 I Fed #003 for the release that occurred on October 6, 2019. Incident tracking #: NRM1933039312.

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

On Friday, November 6, 2020 at approximately 8 a.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

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Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Tue, Nov 3, 2020 at 12:39 PM

To: ngordon@vertex.ca

----- Forwarded message -----

From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>

Date: Tue, Nov 3, 2020 at 12:39 PM

Subject: NRM1933039312: Apache 24 i Fed #003 - 48-hr Notification of Confirmatory Sampling

To: Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>, CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>, Kelsey

<KWade@blm.gov>, Amos, James A <Jamos@blm.gov>

Cc: <wesley.mathews@dvn.com>, <Lupe.Carrasco@dvn.com>, <amanda.davis@dvn.com>, <tom.bynum@dvn.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled confirmatory sampling to be conducted at Apache 24 I Fed #003 for the release that occurred on October 6, 2019. Incident tracking #: NRM1933039312.

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

On Friday, November 6, 2020 at approximately 8 a.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

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Dhugal Hanton <vertexresourcegroupusa@gmail.com>

NRM1933039312(2RP-5711) Apache 24 Fed 3 48 HR Confirmatory Notification

3 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Tue, Oct 11, 2022 at 11:20 AM

To: "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>, "CFO_Spill, BLM_NM" <blm_nm_cfo_spill@blm.gov>

Cc: dale.woodall@dmv.com, mpeppin@vertex.ca, KStallings@vertex.ca

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled a confirmatory sampling to be conducted for the following release:

NRM1933039312 (2RP-5711) DOR: 10/6/2019 Site Name: Apache 24 I Federal 3

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

On Thursday, October 13, 2022 through October 14, 2022 at approximately 8:00 a.m., Monica Peppin and Jacob Reta will be on site to conduct confirmatory sampling to assess the release listed above. 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 575-361-9880.

Thank you,

Monica Peppin

Project Manager

Vertex Resource Services Inc.

3101 Boyd Drive,

Carlsbad, NM 88220

P 575.725.5001 Ext. 711**C 575.361.9880****F**www.vertex.ca

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Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>

Wed, Oct 12, 2022 at 9:57 AM

To: "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>, "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>,"Nobui, Jennifer, EMNRD" <Jennifer.Nobui@emnrd.nm.gov>, "Hamlet, Robert, EMNRD" <Robert.Hamlet@emnrd.nm.gov>,"Velez, Nelson, EMNRD" <Nelson.Velez@emnrd.nm.gov>, "vertexresourcegroupusa@gmail.com"

<vertexresourcegroupusa@gmail.com>

Monica

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thanks,

Jocelyn Harimon

Jocelyn Harimon • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

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

(505)469-2821 | Jocelyn.Harimon@state.nm.us

[http:// www.emnrd.nm.gov](http://www.emnrd.nm.gov)



From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>

Sent: Wednesday, October 12, 2022 8:45 AM

To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>

Subject: Fw: [EXTERNAL] NRM1933039312(2RP-5711) Apache 24 Fed 3 48 HR Confirmatory Notification

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Sent: Tuesday, October 11, 2022 11:20 AM

To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>

Cc: dale.woodall@dmn.com <dale.woodall@dmn.com>; mpeppin@vertex.ca <mpeppin@vertex.ca>;

KStallings@vertex.ca <KStallings@vertex.ca>

Subject: [EXTERNAL] NRM1933039312(2RP-5711) Apache 24 Fed 3 48 HR Confirmatory Notification

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled a confirmatory sampling to be conducted for the following release:

NRM1933039312 (2RP-5711) DOR: 10/6/2019 Site Name: Apache 24 I Federal 3

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

On Thursday, October 13, 2022 through October 14, 2022 at approximately 8:00 a.m., Monica Peppin and Jacob Reta will be on site to conduct confirmatory sampling to assess the release listed above. 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 575-361-9880.

Thank you,

Monica Peppin
Project Manager

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

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

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Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>

Wed, Oct 12, 2022 at 11:47 AM

Monica

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thanks,

Jennifer Nobui

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Wednesday, October 12, 2022 8:45 AM
To: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>; Harimon, Jocelyn, EMNRD <Jocelyn.Harimon@emnrd.nm.gov>; Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Subject: Fw: [EXTERNAL] NRM1933039312(2RP-5711) Apache 24 Fed 3 48 HR Confirmatory Notification

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Tuesday, October 11, 2022 11:20 AM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>
Cc: dale.woodall@dmn.com <dale.woodall@dmn.com>; mpeppin@vertex.ca <mpeppin@vertex.ca>; KStallings@vertex.ca <KStallings@vertex.ca>
Subject: [EXTERNAL] NRM1933039312(2RP-5711) Apache 24 Fed 3 48 HR Confirmatory Notification

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled a confirmatory sampling to be conducted for the following release:

NRM1933039312 (2RP-5711) DOR: 10/6/2019 Site Name: Apache 24 I Federal 3

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

On Thursday, October 13, 2022 through October 14, 2022 at approximately 8:00 a.m., Monica Peppin and Jacob Reta will be on site to conduct confirmatory sampling to assess the release listed above. 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 575-361-9880.

Thank you,

Monica Peppin
Project Manager

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

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

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Dhugal Hanton <vertexresourcegroupusa@gmail.com>

NRM1933039312 (2RP-5711) Apache 24 Fed 3 Confirmation Sample Notification

1 message

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Thu, Nov 3, 2022 at 4:36 PM

To: "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>, "CFO_Spill, BLM_NM" <blm_nm_cfo_spill@blm.gov>

Cc: mpeppin@vertex.ca, KStallings@vertex.ca

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled a confirmatory sampling to be conducted for the following release:

NRM1933039312 (2RP-5711) DOR: 10/6/2019 Site Name: Apache 24 I Federal 3

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

On Wednesday, November 9, 2022 at approximately 8:00 a.m., Chance Dixon will be on site to conduct additional confirmatory sampling to assess the release listed above. He can be reached at 575-988-1472. 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 575-361-9880.

Thank you,

Monica Peppin

Project Manager

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

P 575.725.5001 Ext. 711**C 575.361.9880****F**www.vertex.ca

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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: clients.hallenvironmental.com

November 18, 2020

Amanda Davis

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: Apache 24i Federal 3

OrderNo.: 2011577

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 4 sample(s) on 11/11/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2011577

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-01 0'

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 12:50:00 PM

Lab ID: 2011577-001

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	10000	180		mg/Kg	20	11/14/2020 5:47:33 PM
Motor Oil Range Organics (MRO)	6900	900		mg/Kg	20	11/14/2020 5:47:33 PM
Surr: DNOP	0	30.4-154	S	%Rec	20	11/14/2020 5:47:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	25	D	mg/Kg	5	11/15/2020 11:02:58 PM
Surr: BFB	113	75.3-105	SD	%Rec	5	11/15/2020 11:02:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12	D	mg/Kg	5	11/15/2020 11:02:58 PM
Toluene	ND	0.25	D	mg/Kg	5	11/15/2020 11:02:58 PM
Ethylbenzene	ND	0.25	D	mg/Kg	5	11/15/2020 11:02:58 PM
Xylenes, Total	ND	0.49	D	mg/Kg	5	11/15/2020 11:02:58 PM
Surr: 4-Bromofluorobenzene	98.2	80-120	D	%Rec	5	11/15/2020 11:02:58 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	19000	1500		mg/Kg	500	11/17/2020 5:35:52 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2011577

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-01 2'

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 1:00:00 PM

Lab ID: 2011577-002

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	11/14/2020 6:11:14 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/14/2020 6:11:14 PM
Surr: DNOP	87.0	30.4-154		%Rec	1	11/14/2020 6:11:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/15/2020 11:26:21 PM
Surr: BFB	95.3	75.3-105		%Rec	1	11/15/2020 11:26:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/15/2020 11:26:21 PM
Toluene	ND	0.049		mg/Kg	1	11/15/2020 11:26:21 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/15/2020 11:26:21 PM
Xylenes, Total	ND	0.099		mg/Kg	1	11/15/2020 11:26:21 PM
Surr: 4-Bromofluorobenzene	98.7	80-120		%Rec	1	11/15/2020 11:26:21 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	3900	150		mg/Kg	50	11/17/2020 5:48:17 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	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2011577

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-04 0'

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 2:10:00 PM

Lab ID: 2011577-003

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	12000	170		mg/Kg	20	11/14/2020 7:21:55 PM
Motor Oil Range Organics (MRO)	8200	840		mg/Kg	20	11/14/2020 7:21:55 PM
Surr: DNOP	0	30.4-154	S	%Rec	20	11/14/2020 7:21:55 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	16000	600		mg/Kg	200	11/17/2020 6:00:42 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	11/15/2020 7:36:20 PM
Toluene	ND	0.049		mg/Kg	1	11/15/2020 7:36:20 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/15/2020 7:36:20 PM
Xylenes, Total	0.12	0.098		mg/Kg	1	11/15/2020 7:36:20 PM
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	1	11/15/2020 7:36:20 PM
Surr: 4-Bromofluorobenzene	178	70-130	S	%Rec	1	11/15/2020 7:36:20 PM
Surr: Dibromofluoromethane	105	70-130		%Rec	1	11/15/2020 7:36:20 PM
Surr: Toluene-d8	94.6	70-130		%Rec	1	11/15/2020 7:36:20 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: DJF
Gasoline Range Organics (GRO)	30	4.9		mg/Kg	1	11/15/2020 7:36:20 PM
Surr: BFB	206	70-130	S	%Rec	1	11/15/2020 7:36:20 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	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2011577

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-04 2'

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 2:30:00 PM

Lab ID: 2011577-004

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	730	97		mg/Kg	10	11/14/2020 7:45:24 PM
Motor Oil Range Organics (MRO)	980	480		mg/Kg	10	11/14/2020 7:45:24 PM
Surr: DNOP	0	30.4-154	S	%Rec	10	11/14/2020 7:45:24 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	2700	150		mg/Kg	50	11/17/2020 6:13:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	11/15/2020 8:58:07 PM
Toluene	ND	0.049		mg/Kg	1	11/15/2020 8:58:07 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/15/2020 8:58:07 PM
Xylenes, Total	ND	0.098		mg/Kg	1	11/15/2020 8:58:07 PM
Surr: 1,2-Dichloroethane-d4	98.2	70-130		%Rec	1	11/15/2020 8:58:07 PM
Surr: 4-Bromofluorobenzene	136	70-130	S	%Rec	1	11/15/2020 8:58:07 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	11/15/2020 8:58:07 PM
Surr: Toluene-d8	95.7	70-130		%Rec	1	11/15/2020 8:58:07 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: DJF
Gasoline Range Organics (GRO)	6.1	4.9		mg/Kg	1	11/15/2020 8:58:07 PM
Surr: BFB	122	70-130		%Rec	1	11/15/2020 8:58:07 PM

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Page 4 of 11

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2011577
18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: MB-56456	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 56456	RunNo: 73406
Prep Date: 11/16/2020	Analysis Date: 11/16/2020	SeqNo: 2584633 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-56456	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 56456	RunNo: 73406
Prep Date: 11/16/2020	Analysis Date: 11/16/2020	SeqNo: 2584634 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 93.6 90 110

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix
- B

Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

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

WO#: 2011577

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: MB-56421	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 56421	RunNo: 73369								
Prep Date: 11/13/2020	Analysis Date: 11/14/2020	SeqNo: 2583615	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	9.8		10.00		98.1	30.4	154			

Sample ID: MB-56420	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 56420	RunNo: 73369								
Prep Date: 11/13/2020	Analysis Date: 11/14/2020	SeqNo: 2583616	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	8.8		10.00		88.2	30.4	154			

Sample ID: LCS-56421	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 56421	RunNo: 73369								
Prep Date: 11/13/2020	Analysis Date: 11/14/2020	SeqNo: 2583617	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	90.7	70	130			
Surr: DNOP	4.6		5.000		91.6	30.4	154			

Sample ID: LCS-56420	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 56420	RunNo: 73369								
Prep Date: 11/13/2020	Analysis Date: 11/14/2020	SeqNo: 2583618	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.2	70	130			
Surr: DNOP	3.8		5.000		76.2	30.4	154			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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

Page 6 of 11

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2011577
18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: mb-56410	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 56410	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2582684		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		97.0	75.3	105			

Sample ID: lcs-56410	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 56410	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2582685		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.1	72.5	106			
Surr: BFB	1100		1000		106	75.3	105			S

Sample ID: mb-56415	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 56415	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/16/2020	SeqNo: 2582711		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	950		1000		95.0	75.3	105			

Sample ID: lcs-56415	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 56415	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/16/2020	SeqNo: 2582712		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		104	75.3	105			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix
- B

Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

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

WO#: 2011577

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: mb-56410	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 56410		RunNo: 73362							
Prep Date: 11/12/2020	Analysis Date: 11/15/2020		SeqNo: 2582723		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.2	80	120			

Sample ID: LCS-56410	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 56410		RunNo: 73362							
Prep Date: 11/12/2020	Analysis Date: 11/15/2020		SeqNo: 2582724		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.2	80	120			
Toluene	0.96	0.050	1.000	0	95.6	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.9	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	80	120			

Sample ID: mb-56415	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 56415		RunNo: 73362							
Prep Date: 11/12/2020	Analysis Date: 11/16/2020		SeqNo: 2582747		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		98.4	80	120			

Sample ID: LCS-56415	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 56415		RunNo: 73362							
Prep Date: 11/12/2020	Analysis Date: 11/16/2020		SeqNo: 2582748		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2011577

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: mb-56413	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583203	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: 1,2-Dichloroethane-d4	0.47		0.5000		94.7	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.50		0.5000		99.6	70	130			

Sample ID: lcs-56413	SampType: LCS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BatchQC	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583204	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	102	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.5	80	120			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.7	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		105	70	130			
Surr: Toluene-d8	0.49		0.5000		98.1	70	130			

Sample ID: 2011577-004ams	SampType: MS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BH20-04 2'	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583207	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9756	0	94.7	71.1	115			
Toluene	0.94	0.049	0.9756	0	96.2	79.6	132			
Ethylbenzene	0.93	0.049	0.9756	0	95.8	83.8	134			
Xylenes, Total	2.7	0.098	2.927	0	93.6	82.4	132			
Surr: 1,2-Dichloroethane-d4	0.45		0.4878		93.1	70	130			
Surr: 4-Bromofluorobenzene	0.58		0.4878		119	70	130			
Surr: Dibromofluoromethane	0.48		0.4878		99.3	70	130			
Surr: Toluene-d8	0.47		0.4878		97.2	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2011577

18-Nov-20

Client: Devon Energy

Project: Apache 24i Federal 3

Sample ID: 2011577-004amsd		SampType: MSD4		TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: BH20-04 2'		Batch ID: 56413		RunNo: 73373						
Prep Date: 11/12/2020		Analysis Date: 11/15/2020		SeqNo: 2583208		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.024	0.9551	0	97.0	71.1	115	0.309	20	
Toluene	0.93	0.048	0.9551	0	97.0	79.6	132	1.21	20	
Ethylbenzene	0.92	0.048	0.9551	0	96.7	83.8	134	1.17	20	
Xylenes, Total	2.8	0.096	2.865	0	96.9	82.4	132	1.33	20	
Surr: 1,2-Dichloroethane-d4	0.45		0.4776		94.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.56		0.4776		117	70	130	0	0	
Surr: Dibromofluoromethane	0.47		0.4776		99.4	70	130	0	0	
Surr: Toluene-d8	0.46		0.4776		96.8	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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

WO#: 2011577

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: mb-56413	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583392 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	480		500.0		96.8	70	130			

Sample ID: lcs-56413	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583393 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.0	70	130			
Surr: BFB	480		500.0		96.7	70	130			

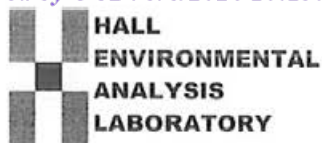
Sample ID: 2011577-003ams	SampType: MS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: BH20-04 0'	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583395 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	51	5.0	24.75	30.30	83.4	49.2	122			
Surr: BFB	870		495.0		176	70	130			S

Sample ID: 2011577-003amsd	SampType: MSD	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: BH20-04 0'	Batch ID: 56413	RunNo: 73373								
Prep Date: 11/12/2020	Analysis Date: 11/15/2020	SeqNo: 2583396 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	55	4.9	24.56	30.30	99.4	49.2	122	7.14	20	
Surr: BFB	1100		491.2		233	70	130	0	0	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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



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

Sample Log-In Check List

Client Name: Devon Energy

Work Order Number: 2011577

RcptNo: 1

Received By: Juan Rojas

11/11/2020 8:50:00 AM

Juan Rojas

Completed By: Emily Mocho

11/11/2020 9:24:24 AM

Reviewed By: JR 11/11/20

Chain of Custody

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

Log In

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

of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: *SQL 11/11/20*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

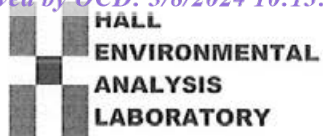
Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			
2	2.3	Good	Yes			
3	3.6	Good	Yes			
4	1.3	Good	Yes			



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

Sample Log-In Check List

Client Name: Devon Energy

Work Order Number: 2011577

RcptNo: 1

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
5	3.7	Good	Yes			



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

November 18, 2020

Amanda Davis

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: Apache 24i Federal 3

OrderNo.: 2011580

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 4 sample(s) on 11/11/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2011580

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: SS20-01 0-0.5

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 11:30:00 AM

Lab ID: 2011580-001

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	11/14/2020 11:54:02 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/14/2020 11:54:02 PM
Surr: DNOP	22.5	30.4-154	S	%Rec	1	11/14/2020 11:54:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/16/2020 3:42:54 AM
Surr: BFB	94.3	75.3-105		%Rec	1	11/16/2020 3:42:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/16/2020 3:42:54 AM
Toluene	ND	0.050		mg/Kg	1	11/16/2020 3:42:54 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/16/2020 3:42:54 AM
Xylenes, Total	ND	0.099		mg/Kg	1	11/16/2020 3:42:54 AM
Surr: 4-Bromofluorobenzene	98.1	80-120		%Rec	1	11/16/2020 3:42:54 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	11/16/2020 7:27:15 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Page 1 of 9

Analytical Report

Lab Order 2011580

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: SS20-02 0-0.5

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 11:40:00 AM

Lab ID: 2011580-002

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: BRM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	11/15/2020 12:17:54 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/15/2020 12:17:54 AM
Surr: DNOP	24.1	30.4-154	S	%Rec	1	11/15/2020 12:17:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/16/2020 4:06:07 AM
Surr: BFB	93.6	75.3-105		%Rec	1	11/16/2020 4:06:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/16/2020 4:06:07 AM
Toluene	ND	0.049		mg/Kg	1	11/16/2020 4:06:07 AM
Ethylbenzene	ND	0.049		mg/Kg	1	11/16/2020 4:06:07 AM
Xylenes, Total	ND	0.098		mg/Kg	1	11/16/2020 4:06:07 AM
Surr: 4-Bromofluorobenzene	96.9	80-120		%Rec	1	11/16/2020 4:06:07 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	160	60		mg/Kg	20	11/16/2020 7:39:39 PM

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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

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Analytical Report

Lab Order 2011580

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: SS20-03 0-0.5

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 11:50:00 AM

Lab ID: 2011580-003

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	11/15/2020 12:41:39 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/15/2020 12:41:39 AM
Surr: DNOP	29.6	30.4-154	S	%Rec	1	11/15/2020 12:41:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/16/2020 8:25:55 AM
Surr: BFB	90.5	75.3-105		%Rec	1	11/16/2020 8:25:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/16/2020 8:25:55 AM
Toluene	ND	0.048		mg/Kg	1	11/16/2020 8:25:55 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/16/2020 8:25:55 AM
Xylenes, Total	ND	0.095		mg/Kg	1	11/16/2020 8:25:55 AM
Surr: 4-Bromofluorobenzene	94.9	80-120		%Rec	1	11/16/2020 8:25:55 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	11/16/2020 7:52:04 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	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Analytical Report

Lab Order 2011580

Date Reported: 11/18/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: SS20-04 0-0.5

Project: Apache 24i Federal 3

Collection Date: 11/6/2020 12:00:00 PM

Lab ID: 2011580-004

Matrix: SOIL

Received Date: 11/11/2020 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	11/15/2020 1:05:32 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/15/2020 1:05:32 AM
Surr: DNOP	23.1	30.4-154	S	%Rec	1	11/15/2020 1:05:32 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/16/2020 8:49:30 AM
Surr: BFB	91.4	75.3-105		%Rec	1	11/16/2020 8:49:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/16/2020 8:49:30 AM
Toluene	ND	0.049		mg/Kg	1	11/16/2020 8:49:30 AM
Ethylbenzene	ND	0.049		mg/Kg	1	11/16/2020 8:49:30 AM
Xylenes, Total	ND	0.099		mg/Kg	1	11/16/2020 8:49:30 AM
Surr: 4-Bromofluorobenzene	97.8	80-120		%Rec	1	11/16/2020 8:49:30 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	11/16/2020 8:04:28 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2011580
18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: MB-56478	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 56478	RunNo: 73406
Prep Date: 11/16/2020	Analysis Date: 11/16/2020	SeqNo: 2584671 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-56478	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 56478	RunNo: 73406
Prep Date: 11/16/2020	Analysis Date: 11/16/2020	SeqNo: 2584672 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 range due to dilution or matrix
- B

Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

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

WO#: 2011580

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: LCS-56374	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 56374			RunNo: 73324						
Prep Date: 11/11/2020	Analysis Date: 11/12/2020			SeqNo: 2580724	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		88.0	30.4	154			

Sample ID: LCS-56377	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 56377			RunNo: 73324						
Prep Date: 11/11/2020	Analysis Date: 11/12/2020			SeqNo: 2580725	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		79.5	30.4	154			

Sample ID: MB-56374	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 56374			RunNo: 73324						
Prep Date: 11/11/2020	Analysis Date: 11/12/2020			SeqNo: 2580728	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		99.8	30.4	154			

Sample ID: MB-56377	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 56377			RunNo: 73324						
Prep Date: 11/11/2020	Analysis Date: 11/12/2020			SeqNo: 2580729	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.5		10.00		95.0	30.4	154			

Sample ID: MB-56424	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 56424			RunNo: 73324						
Prep Date: 11/13/2020	Analysis Date: 11/14/2020			SeqNo: 2582778	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	0		10.00		0	30.4	154			S

Sample ID: LCS-56424	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 56424			RunNo: 73324						
Prep Date: 11/13/2020	Analysis Date: 11/14/2020			SeqNo: 2582780	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.9	70	130			
Surr: DNOP	0		5.000		0	30.4	154			S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2011580

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: MB-56444	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 56444	RunNo: 73386								
Prep Date: 11/14/2020	Analysis Date: 11/16/2020	SeqNo: 2583921	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.8		10.00		78.2	30.4	154			

Sample ID: LCS-56444	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 56444	RunNo: 73386								
Prep Date: 11/14/2020	Analysis Date: 11/16/2020	SeqNo: 2583923	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		81.0	30.4	154			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2011580

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: mb-56415	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 56415	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/16/2020	SeqNo: 2582711			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	75.3	105			

Sample ID: lcs-56415	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 56415	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/16/2020	SeqNo: 2582712			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.8	72.5	106			
Surr: BFB	1000		1000		104	75.3	105			

Sample ID: mb-56432	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 56432	RunNo: 73394								
Prep Date: 11/13/2020	Analysis Date: 11/16/2020	SeqNo: 2584198			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		89.3	75.3	105			

Sample ID: lcs-56432	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 56432	RunNo: 73394								
Prep Date: 11/13/2020	Analysis Date: 11/16/2020	SeqNo: 2584199			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		99.6	75.3	105			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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

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

WO#: 2011580

18-Nov-20

Client: Devon Energy
Project: Apache 24i Federal 3

Sample ID: mb-56415	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 56415	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/16/2020	SeqNo: 2582747			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.4	80	120			

Sample ID: LCS-56415	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 56415	RunNo: 73362								
Prep Date: 11/12/2020	Analysis Date: 11/16/2020	SeqNo: 2582748			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	90.2	80	120			
Toluene	0.92	0.050	1.000	0	92.5	80	120			
Ethylbenzene	0.92	0.050	1.000	0	92.3	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.3	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

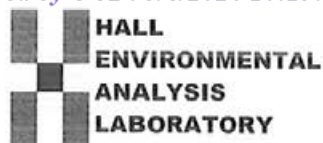
Sample ID: mb-56432	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 56432	RunNo: 73394								
Prep Date: 11/13/2020	Analysis Date: 11/16/2020	SeqNo: 2584243			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.97		1.000		96.7	80	120			

Sample ID: LCS-56432	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 56432	RunNo: 73394								
Prep Date: 11/13/2020	Analysis Date: 11/16/2020	SeqNo: 2584244			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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



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

Sample Log-In Check List

Client Name: **Devon Energy**Work Order Number: **2011580**RcptNo: **1**Received By: **Juan Rojas**

11/11/2020 8:50:00 AM

*Juan Rojas*Completed By: **Emily Mocho**

11/11/2020 9:17:59 AM

Reviewed By:

SGC 11/11/20

Chain of Custody

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

Log In

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

of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted? _____
Checked by: *SGC 11/11/20*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

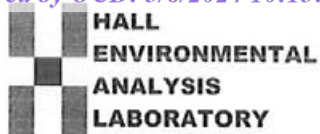
Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			
2	2.3	Good	Yes			
3	3.6	Good	Yes			
4	1.3	Good	Yes			



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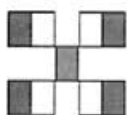
Sample Log-In Check List

Client Name: Devon Energy

Work Order Number: 2011580

RcptNo: 1

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
5	3.7	Good	Yes			



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Chain-of-Custody Record

Client: Devon Energy

Mailing Address:

Phone #:

Email or Fax#:

QA/QC Package:

☐ Standard

☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)Cooler Temp_(including CF): see Checking (°C)

Container	Preservative	HEAL No.
-----------	--------------	----------

Container Type and #	Preservative Type
----------------------	-------------------

HEAL No.

1V6	11:30	50.1	SS20-01	0-0.5
↓	11:40	↓	SS20-02	0-0.5
↓	11:50	↓	SS20-03	0-0.8
↓	12:00	↓	SS20-04	0-0.5

for ice	001
↓	002
↓	003
↓	004

Date:	Time:	Relinquished by:
-------	-------	------------------

Time: 1000	Date: 10-20	Relinquished by: [Signature]
Time: 1900	Date: 11/10/20	Relinquished by: Gummies

Received by:	Via:	Date	Time
<i>[Signature]</i>		10/10/20	1030
Received by:	Via:	Date	Time
<i>[Signature]</i>	carrier	11/11/20	8:50

Remarks: Cc: Natalie
Direct bill
Deven w/o #20

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.



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

September 07, 2021

Brandon Schafer

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (575) 748-0176

FAX:

RE: Apache 24 Fed 3

OrderNo.: 2108G27

Dear Brandon Schafer:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/28/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2108G27
Date Reported: 9/7/2021

CLIENT: Devon Energy
Project: Apache 24 Fed 3
Lab ID: 2108G27-001
Matrix: SOIL
Client Sample ID: BH21-03 2'
Collection Date: 8/25/2021 11:30:00 AM
Received Date: 8/28/2021 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	22	10		mg/Kg	1	9/3/2021 10:35:38 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/3/2021 10:35:38 AM
Surr: DNOP	98.3	70-130		%Rec	1	9/3/2021 10:35:38 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: mb
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/1/2021 1:55:00 AM
Surr: BFB	88.0	70-130		%Rec	1	9/1/2021 1:55:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: mb
Benzene	ND	0.024		mg/Kg	1	9/1/2021 1:55:00 AM
Toluene	ND	0.048		mg/Kg	1	9/1/2021 1:55:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	9/1/2021 1:55:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	9/1/2021 1:55:00 AM
Surr: 4-Bromofluorobenzene	79.2	70-130		%Rec	1	9/1/2021 1:55:00 AM
EPA METHOD 300.0: ANIONS						Analyst: VP
Chloride	ND	60		mg/Kg	20	9/2/2021 10:48:12 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2108G27
07-Sep-21

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: MB-62353	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 62353	RunNo: 80991
Prep Date: 9/2/2021	Analysis Date: 9/2/2021	SeqNo: 2859459 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-62353	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 62353	RunNo: 80991
Prep Date: 9/2/2021	Analysis Date: 9/2/2021	SeqNo: 2859460 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 96.2 90 110

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix
- B

Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

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

WO#: 2108G27

07-Sep-21

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: MB-62284	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 62284			RunNo: 80913						
Prep Date: 8/30/2021	Analysis Date: 8/31/2021			SeqNo: 2857111	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	18		10.00		175	70	130			S

Sample ID: MB-62357	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 62357			RunNo: 81037						
Prep Date: 9/2/2021	Analysis Date: 9/3/2021			SeqNo: 2860299	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	9.8		10.00		97.6	70	130			

Sample ID: LCS-62357	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 62357			RunNo: 81037						
Prep Date: 9/2/2021	Analysis Date: 9/3/2021			SeqNo: 2860303	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	10	50.00	0	75.5	68.9	135			
Surr: DNOP	4.5		5.000		89.2	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2108G27
07-Sep-21

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: mb-62273	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 62273	RunNo: 80942								
Prep Date: 8/30/2021	Analysis Date: 8/31/2021	SeqNo: 2856922			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	880		1000		88.1	70	130			

Sample ID: lcs-62273	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 62273	RunNo: 80942								
Prep Date: 8/30/2021	Analysis Date: 8/31/2021	SeqNo: 2856924			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.8	78.6	131			
Surr: BFB	1100		1000		105	70	130			

Sample ID: mb-62288	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 62288	RunNo: 80979								
Prep Date: 8/30/2021	Analysis Date: 9/1/2021	SeqNo: 2858051			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	870		1000		87.1	70	130			

Sample ID: lcs-62288	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 62288	RunNo: 80979								
Prep Date: 8/30/2021	Analysis Date: 9/1/2021	SeqNo: 2858053			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		102	70	130			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix
- B

Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2108G27
07-Sep-21

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: mb-62273	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 62273	RunNo: 80942								
Prep Date: 8/30/2021	Analysis Date: 8/31/2021	SeqNo: 2856979	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	0.77		1.000		76.9	70	130			

Sample ID: lcs-62273	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 62273	RunNo: 80942								
Prep Date: 8/30/2021	Analysis Date: 8/31/2021	SeqNo: 2856981	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.6	80	120			
Toluene	0.95	0.050	1.000	0	94.7	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.8	80	120			
Surr: 4-Bromofluorobenzene	0.80		1.000		79.8	70	130			

Sample ID: mb-62288	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 62288	RunNo: 80979								
Prep Date: 8/30/2021	Analysis Date: 9/1/2021	SeqNo: 2858091	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.79		1.000		78.6	70	130			

Sample ID: lcs-62288	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 62288	RunNo: 80979								
Prep Date: 8/30/2021	Analysis Date: 9/1/2021	SeqNo: 2858093	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.82		1.000		81.7	70	130			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix
- B

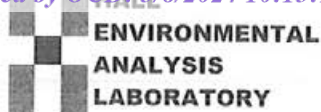
Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit



Sample Log-In Check List

Client Name: Devon Energy

Work Order Number: 2108G27

RcptNo: 1

Received By: Desiree Dominguez 8/28/2021 9:20:00 AM

Completed By: Cheyenne Cason 8/28/2021 10:35:36 AM

Reviewed By: SPA 8.30.21

ID2

Chad

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: KPG 8/50/21

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.2	Good				



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

August 31, 2022

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (575) 748-0176

FAX:

RE: Apache 24 Federal 3

OrderNo.: 2208C63

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/20/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2208C63

Date Reported: 8/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-01 0ft

Project: Apache 24 Federal 3

Collection Date: 8/18/2022 10:00:00 AM

Lab ID: 2208C63-001

Matrix: SOIL

Received Date: 8/20/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	8/23/2022 5:04:50 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/23/2022 5:04:50 PM
Surr: DNOP	93.9	21-129		%Rec	1	8/23/2022 5:04:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/23/2022 9:59:00 PM
Surr: BFB	99.5	37.7-212		%Rec	1	8/23/2022 9:59:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/23/2022 9:59:00 PM
Toluene	ND	0.048		mg/Kg	1	8/23/2022 9:59:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/23/2022 9:59:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/23/2022 9:59:00 PM
Surr: 4-Bromofluorobenzene	95.7	70-130		%Rec	1	8/23/2022 9:59:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	720	60		mg/Kg	20	8/26/2022 9:31:51 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208C63

Date Reported: 8/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-01 2ft

Project: Apache 24 Federal 3

Collection Date: 8/18/2022 10:10:00 AM

Lab ID: 2208C63-002

Matrix: SOIL

Received Date: 8/20/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	39	14		mg/Kg	1	8/23/2022 6:02:15 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/23/2022 6:02:15 PM
Surr: DNOP	117	21-129		%Rec	1	8/23/2022 6:02:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/23/2022 10:19:00 PM
Surr: BFB	101	37.7-212		%Rec	1	8/23/2022 10:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/23/2022 10:19:00 PM
Toluene	ND	0.048		mg/Kg	1	8/23/2022 10:19:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/23/2022 10:19:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/23/2022 10:19:00 PM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	8/23/2022 10:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	600	60		mg/Kg	20	8/26/2022 10:09:04 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	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208C63

Date Reported: 8/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-02 0ft

Project: Apache 24 Federal 3

Collection Date: 8/18/2022 10:20:00 AM

Lab ID: 2208C63-003

Matrix: SOIL

Received Date: 8/20/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/23/2022 6:23:44 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/23/2022 6:23:44 PM
Surr: DNOP	137	21-129	S	%Rec	1	8/23/2022 6:23:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/23/2022 10:38:00 PM
Surr: BFB	105	37.7-212		%Rec	1	8/23/2022 10:38:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/23/2022 10:38:00 PM
Toluene	ND	0.047		mg/Kg	1	8/23/2022 10:38:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/23/2022 10:38:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/23/2022 10:38:00 PM
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	8/23/2022 10:38:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	86	60		mg/Kg	20	8/26/2022 10:21:29 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	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208C63

Date Reported: 8/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-02 2ft

Project: Apache 24 Federal 3

Collection Date: 8/18/2022 10:30:00 AM

Lab ID: 2208C63-004

Matrix: SOIL

Received Date: 8/20/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/23/2022 6:34:38 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/23/2022 6:34:38 PM
Surr: DNOP	148	21-129	S	%Rec	1	8/23/2022 6:34:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/23/2022 10:58:00 PM
Surr: BFB	103	37.7-212		%Rec	1	8/23/2022 10:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/23/2022 10:58:00 PM
Toluene	ND	0.048		mg/Kg	1	8/23/2022 10:58:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/23/2022 10:58:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/23/2022 10:58:00 PM
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	8/23/2022 10:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	110	60		mg/Kg	20	8/26/2022 10:33:53 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208C63

Date Reported: 8/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-03 0ft

Project: Apache 24 Federal 3

Collection Date: 8/18/2022 10:40:00 AM

Lab ID: 2208C63-005

Matrix: SOIL

Received Date: 8/20/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/23/2022 6:45:56 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/23/2022 6:45:56 PM
Surr: DNOP	142	21-129	S	%Rec	1	8/23/2022 6:45:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/23/2022 7:20:41 PM
Surr: BFB	108	37.7-212		%Rec	1	8/23/2022 7:20:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	8/23/2022 7:20:41 PM
Toluene	ND	0.048		mg/Kg	1	8/23/2022 7:20:41 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/23/2022 7:20:41 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/23/2022 7:20:41 PM
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	1	8/23/2022 7:20:41 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/26/2022 10:46:17 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	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 range due to dilution or matrix interference		

Analytical Report

Lab Order 2208C63

Date Reported: 8/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-03 2ft

Project: Apache 24 Federal 3

Collection Date: 8/18/2022 10:50:00 AM

Lab ID: 2208C63-006

Matrix: SOIL

Received Date: 8/20/2022 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/25/2022 1:51:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/25/2022 1:51:55 PM
Surr: DNOP	68.3	21-129		%Rec	1	8/25/2022 1:51:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/23/2022 8:31:25 PM
Surr: BFB	107	37.7-212		%Rec	1	8/23/2022 8:31:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	8/23/2022 8:31:25 PM
Toluene	ND	0.047		mg/Kg	1	8/23/2022 8:31:25 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/23/2022 8:31:25 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/23/2022 8:31:25 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	8/23/2022 8:31:25 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/26/2022 11:23:29 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	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 range due to dilution or matrix interference		

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2208C63
31-Aug-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: MB-69783	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 69783	RunNo: 90630
Prep Date: 8/26/2022	Analysis Date: 8/26/2022	SeqNo: 3238422 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-69783	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 69783	RunNo: 90630
Prep Date: 8/26/2022	Analysis Date: 8/26/2022	SeqNo: 3238423 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 93.3 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E 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#: 2208C63

31-Aug-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: LCS-69678	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 69678		RunNo: 90486							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231312		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	15	50.00	0	81.1	64.4	127			
Surr: DNOP	3.3		5.000		66.5	21	129			

Sample ID: MB-69678	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 69678		RunNo: 90486							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231314		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	21	129			

Sample ID: LCS-69697	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 69697		RunNo: 90543							
Prep Date: 8/23/2022	Analysis Date: 8/24/2022		SeqNo: 3234619		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	34	15	50.00	0	68.5	64.4	127			
Surr: DNOP	3.5		5.000		70.7	21	129			

Sample ID: MB-69697	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 69697		RunNo: 90543							
Prep Date: 8/23/2022	Analysis Date: 8/24/2022		SeqNo: 3234620		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		103	21	129			

Sample ID: LCS-69815	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 69815		RunNo: 90634							
Prep Date: 8/29/2022	Analysis Date: 8/29/2022		SeqNo: 3238730		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.7		5.000		73.9	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208C63

31-Aug-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: MB-69815	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 69815		RunNo: 90634							
Prep Date: 8/29/2022	Analysis Date: 8/29/2022		SeqNo: 3238731		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.4		10.00		83.6	21	129			

Sample ID: MB-69780	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 69780		RunNo: 90637							
Prep Date: 8/25/2022	Analysis Date: 8/26/2022		SeqNo: 3238809		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.0	21	129			

Sample ID: LCS-69780	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 69780		RunNo: 90637							
Prep Date: 8/25/2022	Analysis Date: 8/26/2022		SeqNo: 3238810		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		89.2	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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

WO#: 2208C63

31-Aug-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: mb-69669	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 69669		RunNo: 90483							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231929		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		110	37.7	212			

Sample ID: lcs-69669	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 69669		RunNo: 90483							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231930		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	72.3	137			
Surr: BFB	2100		1000		212	37.7	212			S

Sample ID: 2208c63-005ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-03 0ft	Batch ID: 69669		RunNo: 90483							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231932		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.7	23.72	0	111	70	130			
Surr: BFB	2100		948.8		220	37.7	212			S

Sample ID: 2208c63-005amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH22-03 0ft	Batch ID: 69669		RunNo: 90483							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231933		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	23.85	0	101	70	130	9.03	20	
Surr: BFB	2000		954.2		213	37.7	212	0	0	S

Sample ID: lcs-69661	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 69661		RunNo: 90508							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231992		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	72.3	137			
Surr: BFB	2200		1000		219	37.7	212			S

Sample ID: mb-69661	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 69661		RunNo: 90508							
Prep Date: 8/22/2022	Analysis Date: 8/23/2022		SeqNo: 3231993		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208C63

31-Aug-22

Client: Devon Energy

Project: Apache 24 Federal 3

Sample ID: mb-69661	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 69661	RunNo: 90508								
Prep Date: 8/22/2022	Analysis Date: 8/23/2022	SeqNo: 3231993		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		102	37.7	212			

- Qualifiers:
- *

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

% Recovery outside of range due to dilution or matrix interference

- B

Analyte detected in the associated Method Blank
- E

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#: 2208C63

31-Aug-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: mb-69669	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 69669	RunNo: 90483								
Prep Date: 8/22/2022	Analysis Date: 8/23/2022	SeqNo: 3231977 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	0.94		1.000		94.4	70	130			

Sample ID: LCS-69669	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 69669	RunNo: 90483								
Prep Date: 8/22/2022	Analysis Date: 8/23/2022	SeqNo: 3231980 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.025	1.000	0	82.0	80	120			
Toluene	0.85	0.050	1.000	0	85.4	80	120			
Ethylbenzene	0.86	0.050	1.000	0	86.1	80	120			
Xylenes, Total	2.6	0.10	3.000	0	86.0	80	120			
Surr: 4-Bromofluorobenzene	0.97		1.000		96.8	70	130			

Sample ID: 2208c63-006ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-03 2ft	Batch ID: 69669	RunNo: 90483								
Prep Date: 8/22/2022	Analysis Date: 8/23/2022	SeqNo: 3231983 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9653	0	90.6	68.8	120			
Toluene	0.92	0.048	0.9653	0	94.8	73.6	124			
Ethylbenzene	0.92	0.048	0.9653	0	95.5	72.7	129			
Xylenes, Total	2.8	0.097	2.896	0.01772	94.5	75.7	126			
Surr: 4-Bromofluorobenzene	0.92		0.9653		95.2	70	130			

Sample ID: 2208c63-006amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-03 2ft	Batch ID: 69669	RunNo: 90483								
Prep Date: 8/22/2022	Analysis Date: 8/23/2022	SeqNo: 3231984 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.82	0.024	0.9766	0	83.5	68.8	120	7.03	20	
Toluene	0.85	0.049	0.9766	0	87.4	73.6	124	7.00	20	
Ethylbenzene	0.86	0.049	0.9766	0	87.7	72.7	129	7.35	20	
Xylenes, Total	2.6	0.098	2.930	0.01772	86.9	75.7	126	7.18	20	
Surr: 4-Bromofluorobenzene	0.92		0.9766		94.1	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208C63
31-Aug-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: Ics-69661		SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID: LCSS		Batch ID: 69661			RunNo: 90508					
Prep Date: 8/22/2022		Analysis Date: 8/23/2022			SeqNo: 3232027		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.6	80	120			
Toluene	0.96	0.050	1.000	0	95.6	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.2	80	120			
Xylenes, Total	2.9	0.10	3.000	0	98.0	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	70	130			

Sample ID: mb-69661		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS		Batch ID: 69661		RunNo: 90508						
Prep Date: 8/22/2022		Analysis Date: 8/23/2022		SeqNo: 3232028		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		99.0	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank

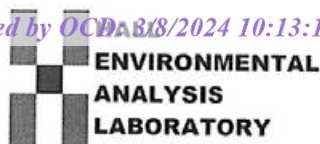
E Estimated value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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

Sample Log-In Check List

Client Name: Vertex Resources
Services, Inc.

Work Order Number: 2208C63

RcptNo: 1

Received By: Tracy Casarrubias 8/20/2022 8:45:00 AM

Completed By: Tracy Casarrubias 8/20/2022 9:37:51 AM

Reviewed By: *See 8/20/22*

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: *See 8/20/22*

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	7.9	Good	Yes			

Chain-of-Custody Record

Client: Dexon Energy (Vertex)Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package:

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

Project Manager:

Kent StallingsSampler: Fernando RodriguezOn Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 8.0 - 0.1 = 7.9 (°C)

Container Type and #

Preservative Type

HEAL No.

Date

Time

Sample Name

Matrix

Date

Time

Sample Name

Matrix

Date

Time

Sample Name

Matrix

Date

Time

Sample Name

Matrix

Date

Time

Sample Name

Matrix

Date

Time

Relinquished by:

Date:

Time:

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Received by:

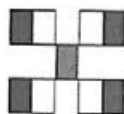
Date:

Time:

Remarks:

CC: Kent Stallings

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.

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 ☐

Cl⁻, F⁻, Br⁻, NO₃⁻, NO₂⁻, PO₄³⁻, SO₄²⁻ ☒

8260 (VOA) ☐

8270 (Semi-VOA) ☐

Total Coliform (Present/Absent) ☐

MTBE / TMB's (8021) ☒

BTEX ☒

001

002

003

004

005

006

4020W ICE

8/18 10:00 Soil BH22-01 0ft

10:10 BH22-01 2ft

10:20 BH22-02 0ft

10:30 BH22-02 2ft

10:40 BH22-03 0ft

10:50 BH22-03 2ft



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

September 01, 2022

Kent Stallings
Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (575) 748-0176
FAX

RE: Apache 24 Federal 3

OrderNo.: 2208D51

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 14 sample(s) on 8/23/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-01 4ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 10:00:00 AM

Lab ID: 2208D51-001

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	540	15		mg/Kg	1	8/24/2022 9:01:55 PM
Motor Oil Range Organics (MRO)	410	50		mg/Kg	1	8/24/2022 9:01:55 PM
Surr: DNOP	92.6	21-129		%Rec	1	8/24/2022 9:01:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/25/2022 12:32:10 AM
Surr: BFB	105	37.7-212		%Rec	1	8/25/2022 12:32:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	8/25/2022 12:32:10 AM
Toluene	ND	0.049		mg/Kg	1	8/25/2022 12:32:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/25/2022 12:32:10 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/25/2022 12:32:10 AM
Surr: 4-Bromofluorobenzene	89.9	70-130		%Rec	1	8/25/2022 12:32:10 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	2900	150		mg/Kg	50	8/29/2022 8:02:58 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-01 6ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 10:10:00 AM

Lab ID: 2208D51-002

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	8/24/2022 9:12:42 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/24/2022 9:12:42 PM
Surr: DNOP	101	21-129		%Rec	1	8/24/2022 9:12:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/25/2022 12:55:43 AM
Surr: BFB	99.9	37.7-212		%Rec	1	8/25/2022 12:55:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/25/2022 12:55:43 AM
Toluene	ND	0.049		mg/Kg	1	8/25/2022 12:55:43 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/25/2022 12:55:43 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/25/2022 12:55:43 AM
Surr: 4-Bromofluorobenzene	91.8	70-130		%Rec	1	8/25/2022 12:55:43 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	4000	150		mg/Kg	50	8/29/2022 8:15:22 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-01 8ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 10:20:00 AM

Lab ID: 2208D51-003

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/24/2022 9:23:34 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/24/2022 9:23:34 PM
Surr: DNOP	90.8	21-129		%Rec	1	8/24/2022 9:23:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/25/2022 1:19:20 AM
Surr: BFB	103	37.7-212		%Rec	1	8/25/2022 1:19:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/25/2022 1:19:20 AM
Toluene	ND	0.050		mg/Kg	1	8/25/2022 1:19:20 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/25/2022 1:19:20 AM
Xylenes, Total	ND	0.10		mg/Kg	1	8/25/2022 1:19:20 AM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	8/25/2022 1:19:20 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	1500	60		mg/Kg	20	8/26/2022 5:19:54 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-02 4ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 10:30:00 AM

Lab ID: 2208D51-004

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	1800	290		mg/Kg	20	8/24/2022 9:34:24 PM
Motor Oil Range Organics (MRO)	1700	970		mg/Kg	20	8/24/2022 9:34:24 PM
Surr: DNOP	0	21-129	S	%Rec	20	8/24/2022 9:34:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/25/2022 1:42:57 AM
Surr: BFB	97.0	37.7-212		%Rec	1	8/25/2022 1:42:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/25/2022 1:42:57 AM
Toluene	ND	0.050		mg/Kg	1	8/25/2022 1:42:57 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/25/2022 1:42:57 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/25/2022 1:42:57 AM
Surr: 4-Bromofluorobenzene	90.2	70-130		%Rec	1	8/25/2022 1:42:57 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	120	61		mg/Kg	20	8/26/2022 5:56:57 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-02 6ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 10:40:00 AM

Lab ID: 2208D51-005

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	53	14		mg/Kg	1	8/24/2022 9:45:23 PM
Motor Oil Range Organics (MRO)	61	48		mg/Kg	1	8/24/2022 9:45:23 PM
Surr: DNOP	109	21-129		%Rec	1	8/24/2022 9:45:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/25/2022 2:30:07 AM
Surr: BFB	100	37.7-212		%Rec	1	8/25/2022 2:30:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/25/2022 2:30:07 AM
Toluene	ND	0.049		mg/Kg	1	8/25/2022 2:30:07 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/25/2022 2:30:07 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/25/2022 2:30:07 AM
Surr: 4-Bromofluorobenzene	91.5	70-130		%Rec	1	8/25/2022 2:30:07 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	59		mg/Kg	20	8/26/2022 6:09:17 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	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-02 8ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 10:50:00 AM

Lab ID: 2208D51-006

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	300	14		mg/Kg	1	8/24/2022 9:56:20 PM
Motor Oil Range Organics (MRO)	220	46		mg/Kg	1	8/24/2022 9:56:20 PM
Surr: DNOP	88.2	21-129		%Rec	1	8/24/2022 9:56:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/25/2022 2:53:42 AM
Surr: BFB	101	37.7-212		%Rec	1	8/25/2022 2:53:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	8/25/2022 2:53:42 AM
Toluene	ND	0.050		mg/Kg	1	8/25/2022 2:53:42 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/25/2022 2:53:42 AM
Xylenes, Total	ND	0.10		mg/Kg	1	8/25/2022 2:53:42 AM
Surr: 4-Bromofluorobenzene	93.0	70-130		%Rec	1	8/25/2022 2:53:42 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	78	60		mg/Kg	20	8/26/2022 6:21:38 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	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-04 4ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 11:00:00 AM

Lab ID: 2208D51-007

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	310	15		mg/Kg	1	8/24/2022 10:07:16 PM
Motor Oil Range Organics (MRO)	240	49		mg/Kg	1	8/24/2022 10:07:16 PM
Surr: DNOP	93.1	21-129		%Rec	1	8/24/2022 10:07:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/25/2022 3:17:15 AM
Surr: BFB	98.4	37.7-212		%Rec	1	8/25/2022 3:17:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	8/25/2022 3:17:15 AM
Toluene	ND	0.049		mg/Kg	1	8/25/2022 3:17:15 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/25/2022 3:17:15 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/25/2022 3:17:15 AM
Surr: 4-Bromofluorobenzene	90.7	70-130		%Rec	1	8/25/2022 3:17:15 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	1400	59		mg/Kg	20	8/26/2022 6:33:58 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	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH20-04 8ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 11:20:00 AM

Lab ID: 2208D51-009

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	58	15		mg/Kg	1	8/26/2022 3:39:31 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/26/2022 3:39:31 PM
Surr: DNOP	121	21-129		%Rec	1	8/26/2022 3:39:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/24/2022 9:31:00 AM
Surr: BFB	101	37.7-212		%Rec	1	8/24/2022 9:31:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	8/24/2022 9:31:00 AM
Toluene	ND	0.047		mg/Kg	1	8/24/2022 9:31:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/24/2022 9:31:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	8/24/2022 9:31:00 AM
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	8/24/2022 9:31:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	530	60		mg/Kg	20	8/26/2022 6:58:39 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	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 range due to dilution or matrix interference		

Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-01 8ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 11:50:00 AM

Lab ID: 2208D51-012

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	8/26/2022 5:59:39 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/26/2022 5:59:39 PM
Surr: DNOP	83.1	21-129		%Rec	1	8/26/2022 5:59:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2022 11:49:00 AM
Surr: BFB	107	37.7-212		%Rec	1	8/24/2022 11:49:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/24/2022 11:49:00 AM
Toluene	ND	0.049		mg/Kg	1	8/24/2022 11:49:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2022 11:49:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/24/2022 11:49:00 AM
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	1	8/24/2022 11:49:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	430	60		mg/Kg	20	8/26/2022 7:35:42 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	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 range due to dilution or matrix interference		

Analytical Report

Lab Order 2208D51

Date Reported: 9/1/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-04 0ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 12:00:00 PM

Lab ID: 2208D51-013

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	25	13		mg/Kg	1	8/26/2022 6:10:10 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/26/2022 6:10:10 PM
Surr: DNOP	89.7	21-129		%Rec	1	8/26/2022 6:10:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2022 12:08:00 PM
Surr: BFB	104	37.7-212		%Rec	1	8/24/2022 12:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/24/2022 12:08:00 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2022 12:08:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2022 12:08:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/24/2022 12:08:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/24/2022 12:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	730	60		mg/Kg	20	8/26/2022 11:42:37 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	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 range due to dilution or matrix interference		

Analytical Report

Lab Order **2208D51**Date Reported: **9/1/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-04 2ft

Project: Apache 24 Federal 3

Collection Date: 8/19/2022 12:10:00 PM

Lab ID: 2208D51-014

Matrix: SOIL

Received Date: 8/23/2022 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	68	14		mg/Kg	1	8/26/2022 6:20:45 PM
Motor Oil Range Organics (MRO)	51	46		mg/Kg	1	8/26/2022 6:20:45 PM
Surr: DNOP	85.0	21-129		%Rec	1	8/26/2022 6:20:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2022 12:28:00 PM
Surr: BFB	109	37.7-212		%Rec	1	8/24/2022 12:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	8/24/2022 12:28:00 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2022 12:28:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2022 12:28:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/24/2022 12:28:00 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	8/24/2022 12:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	2100	60		mg/Kg	20	8/26/2022 11:54:57 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208D51

01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: MB-69797	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 69797	RunNo: 90607								
Prep Date: 8/26/2022	Analysis Date: 8/26/2022	SeqNo: 3238580	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-69797	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 69797	RunNo: 90607								
Prep Date: 8/26/2022	Analysis Date: 8/26/2022	SeqNo: 3238581	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

Sample ID: MB-69809	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 69809	RunNo: 90607								
Prep Date: 8/26/2022	Analysis Date: 8/26/2022	SeqNo: 3238612	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-69809	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 69809	RunNo: 90607								
Prep Date: 8/26/2022	Analysis Date: 8/26/2022	SeqNo: 3238613	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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

WO#: 2208D51

01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: MB-69711	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 69711	RunNo: 90531								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3233825 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.4		10.00		84.4	21	129			

Sample ID: LCS-69711	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 69711	RunNo: 90531								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3233826 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	50.00	0	93.6	64.4	127			
Surr: DNOP	4.3		5.000		85.8	21	129			

Sample ID: 2208D51-008AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH20-04 6ft	Batch ID: 69711	RunNo: 90543								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3235359 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	120	14	47.98	83.35	79.3	36.1	154			
Surr: DNOP	3.8		4.798		79.3	21	129			

Sample ID: 2208D51-008AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH20-04 6ft	Batch ID: 69711	RunNo: 90543								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3235360 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	160	14	47.30	83.35	170	36.1	154	29.7	33.9	S
Surr: DNOP	4.3		4.730		90.9	21	129	0	0	

Sample ID: 2208D51-009AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH20-04 8ft	Batch ID: 69741	RunNo: 90606								
Prep Date: 8/24/2022	Analysis Date: 8/26/2022	SeqNo: 3237336 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	280	14	48.12	57.93	458	36.1	154			S
Surr: DNOP	3.2		4.812		66.7	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208D51

01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: 2208D51-009AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH20-04 8ft	Batch ID: 69741	RunNo: 90606								
Prep Date: 8/24/2022	Analysis Date: 8/26/2022	SeqNo: 3237337 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	150	14	47.17	57.93	205	36.1	154	57.2	33.9	RS
Surr: DNOP	2.8		4.717		59.1	21	129	0	0	

Sample ID: LCS-69741	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 69741	RunNo: 90606								
Prep Date: 8/24/2022	Analysis Date: 8/26/2022	SeqNo: 3237339 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	15	50.00	0	79.1	64.4	127			
Surr: DNOP	3.5		5.000		71.0	21	129			

Sample ID: MB-69741	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 69741	RunNo: 90606								
Prep Date: 8/24/2022	Analysis Date: 8/26/2022	SeqNo: 3238732 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	6.5		10.00		64.7	21	129			

Sample ID: LCS-69837	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 69837	RunNo: 90655								
Prep Date: 8/29/2022	Analysis Date: 8/30/2022	SeqNo: 3239736 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		91.9	21	129			

Sample ID: MB-69837	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 69837	RunNo: 90655								
Prep Date: 8/29/2022	Analysis Date: 8/30/2022	SeqNo: 3239737 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		101	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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

WO#: 2208D51

01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: mb-69698	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 69698			RunNo: 90521						
Prep Date: 8/23/2022	Analysis Date: 8/24/2022			SeqNo: 3234341		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	37.7	212			

Sample ID: lcs-69698	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 69698			RunNo: 90521						
Prep Date: 8/23/2022	Analysis Date: 8/24/2022			SeqNo: 3234342		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	72.3	137			
Surr: BFB	2100		1000		212	37.7	212			

Sample ID: lcs-69706	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 69706			RunNo: 90516						
Prep Date: 8/23/2022	Analysis Date: 8/24/2022			SeqNo: 3234429		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	72.3	137			
Surr: BFB	2200		1000		225	37.7	212			S

Sample ID: mb-69706	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 69706			RunNo: 90516						
Prep Date: 8/23/2022	Analysis Date: 8/24/2022			SeqNo: 3234430		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		102	37.7	212			

Sample ID: 2208d51-009ams	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH20-04 8ft	Batch ID: 69706			RunNo: 90516						
Prep Date: 8/23/2022	Analysis Date: 8/24/2022			SeqNo: 3234432		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	4.7	23.65	0	117	70	130			
Surr: BFB	2400		946.1		252	37.7	212			S

Sample ID: 2208d51-009amsd	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH20-04 8ft	Batch ID: 69706			RunNo: 90516						
Prep Date: 8/23/2022	Analysis Date: 8/24/2022			SeqNo: 3234433		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 range due to dilution or matrix interference

B Analyte detected in the associated Method Blank
E 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#: 2208D51
01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: 2208d51-009amsd		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH20-04 8ft		Batch ID: 69706		RunNo: 90516						
Prep Date: 8/23/2022		Analysis Date: 8/24/2022		SeqNo: 3234433		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.7	23.70	0	121	70	130	3.57	20	
Surr: BFB	2400		947.9		257	37.7	212	0	0	S

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix interference
- B

Analyte detected in the associated Method Blank
- E

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#: 2208D51

01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: mb-69698	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 69698	RunNo: 90521								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3234397 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	0.94		1.000		93.8	70	130			

Sample ID: LCS-69698	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 69698	RunNo: 90521								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3234398 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.8	80	120			
Toluene	0.91	0.050	1.000	0	91.1	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.7	80	120			
Xylenes, Total	2.8	0.10	3.000	0	91.7	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.1	70	130			

Sample ID: lcs-69706	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 69706	RunNo: 90516								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3234445 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	1.000	0	86.1	80	120			
Toluene	0.89	0.050	1.000	0	89.3	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.7	80	120			
Xylenes, Total	2.7	0.10	3.000	0	91.5	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.7	70	130			

Sample ID: mb-69706	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 69706	RunNo: 90516								
Prep Date: 8/23/2022	Analysis Date: 8/24/2022	SeqNo: 3234446 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2208D51

01-Sep-22

Client: Devon Energy
Project: Apache 24 Federal 3

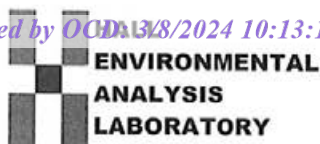
Sample ID: 2208d51-010ams		SampType: MS		TestCode: EPA Method 8021B: Volatiles						
Client ID: BH22-01 4ft		Batch ID: 69706		RunNo: 90516						
Prep Date: 8/23/2022		Analysis Date: 8/24/2022		SeqNo: 3234449		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9891	0	94.3	68.8	120			
Toluene	0.98	0.049	0.9891	0	99.5	73.6	124			
Ethylbenzene	1.0	0.049	0.9891	0	104	72.7	129			
Xylenes, Total	3.1	0.099	2.967	0	103	75.7	126			
Surr: 4-Bromofluorobenzene	0.96		0.9891		97.1	70	130			

Sample ID: 2208d51-010amsd		SampType: MSD		TestCode: EPA Method 8021B: Volatiles						
Client ID: BH22-01 4ft		Batch ID: 69706		RunNo: 90516						
Prep Date: 8/23/2022		Analysis Date: 8/24/2022		SeqNo: 3234450		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	0.9901	0	98.3	68.8	120	4.27	20	
Toluene	1.0	0.050	0.9901	0	105	73.6	124	5.03	20	
Ethylbenzene	1.1	0.050	0.9901	0	109	72.7	129	5.17	20	
Xylenes, Total	3.2	0.099	2.970	0	108	75.7	126	5.26	20	
Surr: 4-Bromofluorobenzene	0.96		0.9901		97.1	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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

Sample Log-In Check List

Client Name: Vertex Resources
Services, Inc.

Work Order Number: 2208D51

RcptNo: 1

Received By: Juan Rojas 8/23/2022 7:10:00 AM

Completed By: Cheyenne Cason 8/23/2022 8:18:24 AM

Reviewed By: KPH 8.23.22

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: ms/23/22

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	0.4	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy/VertexMailing 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
8/19	10:00	soil	BH20-01 4ft
	10:10		BH20-01 6ft
	10:20		BH20-01 8ft
	10:30		BH20-02 4ft
	10:40		BH20-02 6ft
	10:50		BH20-02 8ft
	11:00		BH20-04 4ft
	11:10		BH20-04 6ft
	11:20		BH20-04 8ft
	11:30		BH22-01 4ft
	11:40		BH22-01 6ft
	11:50		BH22-01 8ft

Date: 8/19 Time: 15:30Date: 8/23/22 Time: 1900Relinquished by: [Signature]Relinquished by: [Signature]

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:

Apache 24 Federal #3

Project #:

NE-02816-01

Project Manager:

Kent StallingsSampler: Fernando RodriguezOn Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 0.2 to 2.0 °CHEAL No. 2208051

Container Type and #

402 jar

Preservative Type

VCE

TPH: 8015D (GRO / DRO / MRO)

BTX / MTBE / TMB's (8021)

8081 Pesticides/8082 PCB's

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

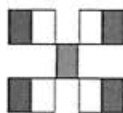
(C) F, Br, NO₃, NO₂, PO₄, SO₄

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

Analysis Request

HALL ENVIRONMENTAL
ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Remarks:

cc: Kent StallingsReceived by: [Signature] Date: 8/23/22 Time: 000Received by: [Signature] Date: 8/23/22 Time: 7:10

Chain-of-Custody Record

Client: Devon Energy / 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 Day
Project Name: Apache Federal #321E-02816-01Project #: 21E-02816-01Project Manager: Kent StallingsSampler: Fernando Rodriguez
On Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 0.24122 = 6.4 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
8/19	12:00	soil	BH22-04 off	402 jar	ice	2268DS1
8/19	12:10	soil	BH22-04 off	402 jar	ice	014

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	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
<input checked="" type="checkbox"/> (BTEX) / MTBE / TMB's (8021)								

Remarks:

cc: Kent StallingsReceived by: Alvarez Date: 8/22/22 Time: 900Received by: Alvarez Date: 8/23/22 Time: 7:10



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

October 07, 2022

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX

RE: Apache 24 Federal 3

OrderNo.: 2209E06

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 3 sample(s) on 9/27/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2209E06

Date Reported: 10/7/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-04 9'

Project: Apache 24 Federal 3

Collection Date: 9/23/2022 1:10:00 PM

Lab ID: 2209E06-001

Matrix: SOIL

Received Date: 9/27/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	9/29/2022 1:28:53 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/29/2022 1:28:53 PM
Surr: DNOP	116	21-129		%Rec	1	9/29/2022 1:28:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/29/2022 4:44:00 PM
Surr: BFB	100	37.7-212		%Rec	1	9/29/2022 4:44:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	9/29/2022 4:44:00 PM
Toluene	ND	0.049		mg/Kg	1	9/29/2022 4:44:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/29/2022 4:44:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/29/2022 4:44:00 PM
Surr: 4-Bromofluorobenzene	91.6	70-130		%Rec	1	9/29/2022 4:44:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	460	60		mg/Kg	20	10/3/2022 3:00:49 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2209E06

Date Reported: 10/7/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-05 0'-4'

Project: Apache 24 Federal 3

Collection Date: 9/23/2022 1:15:00 PM

Lab ID: 2209E06-002

Matrix: SOIL

Received Date: 9/27/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/29/2022 1:42:23 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/29/2022 1:42:23 PM
Surr: DNOP	88.1	21-129		%Rec	1	9/29/2022 1:42:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/29/2022 5:03:00 PM
Surr: BFB	103	37.7-212		%Rec	1	9/29/2022 5:03:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	9/29/2022 5:03:00 PM
Toluene	ND	0.049		mg/Kg	1	9/29/2022 5:03:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/29/2022 5:03:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/29/2022 5:03:00 PM
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	9/29/2022 5:03:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	170	61		mg/Kg	20	10/3/2022 4:43:30 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	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 range due to dilution or matrix interference		

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Analytical Report

Lab Order 2209E06

Date Reported: 10/7/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH22-06 0'-4'

Project: Apache 24 Federal 3

Collection Date: 9/23/2022 1:20:00 PM

Lab ID: 2209E06-003

Matrix: SOIL

Received Date: 9/27/2022 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	9/29/2022 1:55:57 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/29/2022 1:55:57 PM
Surr: DNOP	106	21-129		%Rec	1	9/29/2022 1:55:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/29/2022 5:23:00 PM
Surr: BFB	108	37.7-212		%Rec	1	9/29/2022 5:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	9/29/2022 5:23:00 PM
Toluene	ND	0.049		mg/Kg	1	9/29/2022 5:23:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/29/2022 5:23:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/29/2022 5:23:00 PM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	9/29/2022 5:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	730	60		mg/Kg	20	10/3/2022 5:20:44 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	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 range due to dilution or matrix interference		

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2209E06
07-Oct-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: MB-70539	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 70539	RunNo: 91495								
Prep Date: 10/3/2022	Analysis Date: 10/3/2022	SeqNo: 3277087		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-70539	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 70539	RunNo: 91495								
Prep Date: 10/3/2022	Analysis Date: 10/3/2022	SeqNo: 3277088		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.9	90	110			

Sample ID: MB-70561	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 70561	RunNo: 91495								
Prep Date: 10/3/2022	Analysis Date: 10/3/2022	SeqNo: 3277117		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-70561	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 70561	RunNo: 91495								
Prep Date: 10/3/2022	Analysis Date: 10/3/2022	SeqNo: 3277118		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2209E06
07-Oct-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: MB-70465	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70465	RunNo: 91420								
Prep Date: 9/28/2022	Analysis Date: 9/29/2022	SeqNo: 3273391	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		118	21	129			

Sample ID: LCS-70465	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70465	RunNo: 91420								
Prep Date: 9/28/2022	Analysis Date: 9/29/2022	SeqNo: 3273393	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	45	15	50.00	0	89.5	64.4	127			
Surr: DNOP	4.7		5.000		95.0	21	129			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix interference
- B

Analyte detected in the associated Method Blank
- E

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#: 2209E06
07-Oct-22

Client: Devon Energy

Project: Apache 24 Federal 3

Sample ID: lcs-70460	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 70460			RunNo: 91419						
Prep Date: 9/28/2022	Analysis Date: 9/29/2022			SeqNo: 3272915		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	72.3	137			
Surr: BFB	2400		1000		237	37.7	212			S

Sample ID: mb-70460	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 70460			RunNo: 91419						
Prep Date: 9/28/2022	Analysis Date: 9/29/2022			SeqNo: 3272916		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		102	37.7	212			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix interference
- B

Analyte detected in the associated Method Blank
- E

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#: 2209E06
07-Oct-22

Client: Devon Energy
Project: Apache 24 Federal 3

Sample ID: Ics-70460	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 70460	RunNo: 91419								
Prep Date: 9/28/2022	Analysis Date: 9/29/2022	SeqNo: 3272939	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	95.4	80	120			
Toluene	0.98	0.050	1.000	0	98.5	80	120			
Ethylbenzene	1.0	0.050	1.000	0	99.7	80	120			
Xylenes, Total	3.0	0.10	3.000	0	98.4	80	120			
Surr: 4-Bromofluorobenzene	0.97		1.000		96.6	70	130			

Sample ID: mb-70460	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 70460	RunNo: 91419								
Prep Date: 9/28/2022	Analysis Date: 9/29/2022	SeqNo: 3272940	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	0.95		1.000		94.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix interference

B Analyte detected in the associated Method Blank

E 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: Devon Energy

Work Order Number: 2209E06

RcptNo: 1

Received By: Joseph Alderette 9/27/2022 7:25:00 AM

Completed By: Sean Livingston 9/27/2022 8:30:09 AM

Reviewed By: KPG 9-27-22

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: JN9/27/22

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

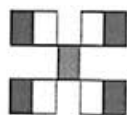
16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.3	Good				

Chain-of-Custody Record

Client: <u>Devon</u> <u>(Vertex)</u>		Turn-Around Time: <input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Rush <u>5 Day</u>	
Mailing Address: <u>On File</u>		Project Name: <u>Alache 24 Federal 3</u>	
Phone #: <u>[Signature]</u>		Project #: <u>21E-02816</u>	
email or Fax#: <u>[Signature]</u>		Project Manager: <u>Kent Stallings</u>	
QA/QC Package: <input type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation)		Sampler: <input type="checkbox"/> On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Accreditation: <input type="checkbox"/> Az Compliance <input type="checkbox"/> NELAC <input type="checkbox"/> Other		# of Coolers: <u>1</u>	
<input type="checkbox"/> EDD (Type) _____		Cooler Temp (including CFI): <u>5.3 - 6.3</u> (°C)	
Date	Time	Matrix	Sample Name
9/23	13:10	Soil	BH22-04 9'
	13:15		BH22-05 0'-4'
	13:20		BH22-06 0'-4'
Date		Time	Relinquished by:
9/23		18:15	S. Reta
Date		Time	Relinquished by:
9/24/22		1900	[Signature]
Received by:		Via:	Date
[Signature]			9/22/22
Received by:		Via:	Date
[Signature]			9/27/22
Received by:		Via:	Date
[Signature]			9/27/22
Received by:		Via:	Date
[Signature]			9/27/22



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

☒ BTEX / 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, NO₃, NO₂, PO₄, SO₄ ☐ 8260 (VOA) ☐ 8270 (Semi-VOA) ☐ Total Coliform (Present/Absent)

Remarks:

Direct Bill to Devon

cc: Monica Peppin



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

October 31, 2022

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Apache 24 Fed 3

OrderNo.: 2210785

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 28 sample(s) on 10/15/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-01 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 11:30:00 AM

Lab ID: 2210785-001

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/24/2022 1:19:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/24/2022 1:19:37 PM
Surr: DNOP	104	21-129		%Rec	1	10/24/2022 1:19:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/18/2022 6:34:00 PM
Surr: BFB	98.0	37.7-212		%Rec	1	10/18/2022 6:34:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/18/2022 6:34:00 PM
Toluene	ND	0.049		mg/Kg	1	10/18/2022 6:34:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/18/2022 6:34:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/18/2022 6:34:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/18/2022 6:34:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	220	60		mg/Kg	20	10/21/2022 5:33:30 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.		

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Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-02 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 11:35:00 AM

Lab ID: 2210785-002

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/24/2022 1:33:05 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/24/2022 1:33:05 PM
Surr: DNOP	116	21-129		%Rec	1	10/24/2022 1:33:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/18/2022 6:54:00 PM
Surr: BFB	96.9	37.7-212		%Rec	1	10/18/2022 6:54:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/18/2022 6:54:00 PM
Toluene	ND	0.050		mg/Kg	1	10/18/2022 6:54:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/18/2022 6:54:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/18/2022 6:54:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	10/18/2022 6:54:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	170	61		mg/Kg	20	10/21/2022 6:10:44 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-03 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 11:40:00 AM

Lab ID: 2210785-003

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/24/2022 1:46:26 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/24/2022 1:46:26 PM
Surr: DNOP	91.9	21-129		%Rec	1	10/24/2022 1:46:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/18/2022 7:14:00 PM
Surr: BFB	96.3	37.7-212		%Rec	1	10/18/2022 7:14:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/18/2022 7:14:00 PM
Toluene	ND	0.050		mg/Kg	1	10/18/2022 7:14:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/18/2022 7:14:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	10/18/2022 7:14:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	10/18/2022 7:14:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	59		mg/Kg	20	10/21/2022 6:23:08 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.		

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Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-04 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 11:45:00 AM

Lab ID: 2210785-004

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	35	15		mg/Kg	1	10/24/2022 1:59:54 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/24/2022 1:59:54 PM
Surr: DNOP	119	21-129		%Rec	1	10/24/2022 1:59:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/18/2022 7:33:00 PM
Surr: BFB	93.2	37.7-212		%Rec	1	10/18/2022 7:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/18/2022 7:33:00 PM
Toluene	ND	0.049		mg/Kg	1	10/18/2022 7:33:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/18/2022 7:33:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	10/18/2022 7:33:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/18/2022 7:33:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	510	60		mg/Kg	20	10/21/2022 7:00:21 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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Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-05 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 11:50:00 AM

Lab ID: 2210785-005

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/19/2022 8:53:23 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/19/2022 8:53:23 PM
Surr: DNOP	102	21-129		%Rec	1	10/19/2022 8:53:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/18/2022 9:31:00 PM
Surr: BFB	97.9	37.7-212		%Rec	1	10/18/2022 9:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/18/2022 9:31:00 PM
Toluene	ND	0.049		mg/Kg	1	10/18/2022 9:31:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/18/2022 9:31:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/18/2022 9:31:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/18/2022 9:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	170	60		mg/Kg	20	10/21/2022 7:12:45 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.		

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Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-06 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 11:55:00 AM

Lab ID: 2210785-006

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/19/2022 9:36:10 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/19/2022 9:36:10 PM
Surr: DNOP	97.2	21-129		%Rec	1	10/19/2022 9:36:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/18/2022 10:30:00 PM
Surr: BFB	95.2	37.7-212		%Rec	1	10/18/2022 10:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/18/2022 10:30:00 PM
Toluene	ND	0.047		mg/Kg	1	10/18/2022 10:30:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/18/2022 10:30:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	10/18/2022 10:30:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	10/18/2022 10:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	120	60		mg/Kg	20	10/21/2022 7:25:09 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-07 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:00:00 PM

Lab ID: 2210785-007

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/19/2022 9:50:15 PM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	10/19/2022 9:50:15 PM
Surr: DNOP	105	21-129		%Rec	1	10/19/2022 9:50:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/18/2022 11:29:00 PM
Surr: BFB	98.4	37.7-212		%Rec	1	10/18/2022 11:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/18/2022 11:29:00 PM
Toluene	ND	0.049		mg/Kg	1	10/18/2022 11:29:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/18/2022 11:29:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/18/2022 11:29:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/18/2022 11:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	240	60		mg/Kg	20	10/21/2022 7:37:33 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.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2210785
Date Reported: 10/31/2022

CLIENT: Vertex Resources Services, Inc. Client Sample ID: BS22-08 10ft
Project: Apache 24 Fed 3 Collection Date: 10/13/2022 12:05:00 PM
Lab ID: 2210785-008 Matrix: SOIL Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/19/2022 10:04:19 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/19/2022 10:04:19 PM
Surr: DNOP	108	21-129		%Rec	1	10/19/2022 10:04:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/18/2022 11:48:00 PM
Surr: BFB	90.5	37.7-212		%Rec	1	10/18/2022 11:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/18/2022 11:48:00 PM
Toluene	ND	0.049		mg/Kg	1	10/18/2022 11:48:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/18/2022 11:48:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/18/2022 11:48:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	10/18/2022 11:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	260	60		mg/Kg	20	10/21/2022 7:49:57 PM

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

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

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-09 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:10:00 PM

Lab ID: 2210785-009

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	24	13		mg/Kg	1	10/19/2022 10:18:27 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	10/19/2022 10:18:27 PM
Surr: DNOP	103	21-129		%Rec	1	10/19/2022 10:18:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/19/2022 12:08:00 AM
Surr: BFB	92.2	37.7-212		%Rec	1	10/19/2022 12:08:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.023		mg/Kg	1	10/19/2022 12:08:00 AM
Toluene	ND	0.047		mg/Kg	1	10/19/2022 12:08:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/19/2022 12:08:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	10/19/2022 12:08:00 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/19/2022 12:08:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	600	60		mg/Kg	20	10/21/2022 8:02:21 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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Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-10 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:15:00 PM

Lab ID: 2210785-010

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	1100	150		mg/Kg	10	10/19/2022 9:42:29 PM
Motor Oil Range Organics (MRO)	710	480		mg/Kg	10	10/19/2022 9:42:29 PM
Surr: DNOP	0	21-129	S	%Rec	10	10/19/2022 9:42:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 12:28:00 AM
Surr: BFB	97.3	37.7-212		%Rec	1	10/19/2022 12:28:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 12:28:00 AM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 12:28:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 12:28:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2022 12:28:00 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	10/19/2022 12:28:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	500	60		mg/Kg	20	10/21/2022 8:14:46 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-11 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:20:00 PM

Lab ID: 2210785-011

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/19/2022 10:32:22 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/19/2022 10:32:22 PM
Surr: DNOP	109	21-129		%Rec	1	10/19/2022 10:32:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/19/2022 12:47:00 AM
Surr: BFB	94.2	37.7-212		%Rec	1	10/19/2022 12:47:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/19/2022 12:47:00 AM
Toluene	ND	0.049		mg/Kg	1	10/19/2022 12:47:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2022 12:47:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/19/2022 12:47:00 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	10/19/2022 12:47:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	86	60		mg/Kg	20	10/21/2022 8:27:10 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-12 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:25:00 PM

Lab ID: 2210785-012

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	130	15		mg/Kg	1	10/19/2022 10:46:26 PM
Motor Oil Range Organics (MRO)	320	49		mg/Kg	1	10/19/2022 10:46:26 PM
Surr: DNOP	105	21-129		%Rec	1	10/19/2022 10:46:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/19/2022 1:07:00 AM
Surr: BFB	94.8	37.7-212		%Rec	1	10/19/2022 1:07:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 1:07:00 AM
Toluene	ND	0.047		mg/Kg	1	10/19/2022 1:07:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/19/2022 1:07:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/19/2022 1:07:00 AM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	10/19/2022 1:07:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	250	60		mg/Kg	20	10/21/2022 8:39:35 PM

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

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

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-13 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:30:00 PM

Lab ID: 2210785-013

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/19/2022 11:00:18 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/19/2022 11:00:18 PM
Surr: DNOP	107	21-129		%Rec	1	10/19/2022 11:00:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/19/2022 1:27:00 AM
Surr: BFB	97.1	37.7-212		%Rec	1	10/19/2022 1:27:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/19/2022 1:27:00 AM
Toluene	ND	0.050		mg/Kg	1	10/19/2022 1:27:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/19/2022 1:27:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	10/19/2022 1:27:00 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/19/2022 1:27:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	210	60		mg/Kg	20	10/21/2022 8:51:59 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-14 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:35:00 PM

Lab ID: 2210785-014

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	22	14		mg/Kg	1	10/19/2022 11:14:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/19/2022 11:14:11 PM
Surr: DNOP	107	21-129		%Rec	1	10/19/2022 11:14:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 1:46:00 AM
Surr: BFB	91.5	37.7-212		%Rec	1	10/19/2022 1:46:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 1:46:00 AM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 1:46:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 1:46:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	10/19/2022 1:46:00 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	10/19/2022 1:46:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	940	60		mg/Kg	20	10/21/2022 9:29:12 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-15 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:40:00 PM

Lab ID: 2210785-015

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	57	13		mg/Kg	1	10/20/2022 9:59:15 AM
Motor Oil Range Organics (MRO)	77	44		mg/Kg	1	10/20/2022 9:59:15 AM
Surr: DNOP	110	21-129		%Rec	1	10/20/2022 9:59:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/19/2022 2:26:00 AM
Surr: BFB	94.2	37.7-212		%Rec	1	10/19/2022 2:26:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.023		mg/Kg	1	10/19/2022 2:26:00 AM
Toluene	ND	0.046		mg/Kg	1	10/19/2022 2:26:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	10/19/2022 2:26:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	10/19/2022 2:26:00 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/19/2022 2:26:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	890	59		mg/Kg	20	10/21/2022 9:41:36 PM

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

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

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-16 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:45:00 PM

Lab ID: 2210785-016

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	530	14		mg/Kg	1	10/19/2022 10:30:42 PM
Motor Oil Range Organics (MRO)	280	46		mg/Kg	1	10/19/2022 10:30:42 PM
Surr: DNOP	127	21-129		%Rec	1	10/19/2022 10:30:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/19/2022 2:45:00 AM
Surr: BFB	90.2	37.7-212		%Rec	1	10/19/2022 2:45:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.023		mg/Kg	1	10/19/2022 2:45:00 AM
Toluene	ND	0.047		mg/Kg	1	10/19/2022 2:45:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/19/2022 2:45:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	10/19/2022 2:45:00 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/19/2022 2:45:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	530	60		mg/Kg	20	10/21/2022 9:54:01 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-17 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:50:00 PM

Lab ID: 2210785-017

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/19/2022 11:28:00 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/19/2022 11:28:00 PM
Surr: DNOP	109	21-129		%Rec	1	10/19/2022 11:28:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/19/2022 3:05:00 AM
Surr: BFB	96.4	37.7-212		%Rec	1	10/19/2022 3:05:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/19/2022 3:05:00 AM
Toluene	ND	0.049		mg/Kg	1	10/19/2022 3:05:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2022 3:05:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	10/19/2022 3:05:00 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	10/19/2022 3:05:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	330	60		mg/Kg	20	10/21/2022 10:06:25 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-18 10ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 12:55:00 PM

Lab ID: 2210785-018

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	170	14		mg/Kg	1	10/20/2022 10:22:52 AM
Motor Oil Range Organics (MRO)	160	47		mg/Kg	1	10/20/2022 10:22:52 AM
Surr: DNOP	111	21-129		%Rec	1	10/20/2022 10:22:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/19/2022 3:25:00 AM
Surr: BFB	94.5	37.7-212		%Rec	1	10/19/2022 3:25:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 3:25:00 AM
Toluene	ND	0.049		mg/Kg	1	10/19/2022 3:25:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2022 3:25:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	10/19/2022 3:25:00 AM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	10/19/2022 3:25:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	530	60		mg/Kg	20	10/21/2022 10:18:49 PM

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

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

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-19 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:00:00 PM

Lab ID: 2210785-019

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	10/19/2022 11:41:41 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	10/19/2022 11:41:41 PM
Surr: DNOP	102	21-129		%Rec	1	10/19/2022 11:41:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 3:44:00 AM
Surr: BFB	94.5	37.7-212		%Rec	1	10/19/2022 3:44:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 3:44:00 AM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 3:44:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 3:44:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	10/19/2022 3:44:00 AM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	10/19/2022 3:44:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	570	60		mg/Kg	20	10/21/2022 10:31:13 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-20 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:05:00 PM

Lab ID: 2210785-020

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	390	280		mg/Kg	20	10/19/2022 11:18:44 PM
Motor Oil Range Organics (MRO)	970	940		mg/Kg	20	10/19/2022 11:18:44 PM
Surr: DNOP	0	21-129	S	%Rec	20	10/19/2022 11:18:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 4:04:00 AM
Surr: BFB	90.4	37.7-212		%Rec	1	10/19/2022 4:04:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 4:04:00 AM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 4:04:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 4:04:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/19/2022 4:04:00 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	10/19/2022 4:04:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	1200	60		mg/Kg	20	10/21/2022 10:43:38 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-21 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:10:00 PM

Lab ID: 2210785-021

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/19/2022 11:55:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/19/2022 11:55:24 PM
Surr: DNOP	98.7	21-129		%Rec	1	10/19/2022 11:55:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/19/2022 4:24:00 AM
Surr: BFB	98.2	37.7-212		%Rec	1	10/19/2022 4:24:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/19/2022 4:24:00 AM
Toluene	ND	0.049		mg/Kg	1	10/19/2022 4:24:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/19/2022 4:24:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/19/2022 4:24:00 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	10/19/2022 4:24:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	210	60		mg/Kg	20	10/21/2022 10:56:03 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-22 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:15:00 PM

Lab ID: 2210785-022

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/20/2022 12:09:04 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/20/2022 12:09:04 AM
Surr: DNOP	101	21-129		%Rec	1	10/20/2022 12:09:04 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 4:43:00 AM
Surr: BFB	96.0	37.7-212		%Rec	1	10/19/2022 4:43:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 4:43:00 AM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 4:43:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 4:43:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2022 4:43:00 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/19/2022 4:43:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	63	60		mg/Kg	20	10/21/2022 11:08:27 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-23 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:20:00 PM

Lab ID: 2210785-023

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/20/2022 12:22:47 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/20/2022 12:22:47 AM
Surr: DNOP	95.7	21-129		%Rec	1	10/20/2022 12:22:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/19/2022 5:03:00 AM
Surr: BFB	94.3	37.7-212		%Rec	1	10/19/2022 5:03:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/19/2022 5:03:00 AM
Toluene	ND	0.050		mg/Kg	1	10/19/2022 5:03:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/19/2022 5:03:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/19/2022 5:03:00 AM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	10/19/2022 5:03:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	400	59		mg/Kg	20	10/21/2022 11:20:52 PM

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

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

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-24 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:25:00 PM

Lab ID: 2210785-024

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	10/20/2022 12:36:25 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	10/20/2022 12:36:25 AM
Surr: DNOP	101	21-129		%Rec	1	10/20/2022 12:36:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 5:23:00 AM
Surr: BFB	93.2	37.7-212		%Rec	1	10/19/2022 5:23:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/19/2022 5:23:00 AM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 5:23:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 5:23:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/19/2022 5:23:00 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	10/19/2022 5:23:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	980	60		mg/Kg	20	10/24/2022 9:15:15 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.		

Analytical Report

Lab Order 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-25 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:30:00 PM

Lab ID: 2210785-025

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/24/2022 2:13:15 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/24/2022 2:13:15 PM
Surr: DNOP	102	21-129		%Rec	1	10/24/2022 2:13:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/20/2022 4:43:00 AM
Surr: BFB	95.3	37.7-212		%Rec	1	10/20/2022 4:43:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/20/2022 4:43:00 AM
Toluene	ND	0.050		mg/Kg	1	10/20/2022 4:43:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/20/2022 4:43:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	10/20/2022 4:43:00 AM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	10/20/2022 4:43:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	510	60		mg/Kg	20	10/24/2022 9:27:39 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-26 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:35:00 PM

Lab ID: 2210785-026

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/24/2022 2:26:36 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/24/2022 2:26:36 PM
Surr: DNOP	125	21-129		%Rec	1	10/24/2022 2:26:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/20/2022 5:03:00 AM
Surr: BFB	97.3	37.7-212		%Rec	1	10/20/2022 5:03:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/20/2022 5:03:00 AM
Toluene	ND	0.049		mg/Kg	1	10/20/2022 5:03:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/20/2022 5:03:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	10/20/2022 5:03:00 AM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	10/20/2022 5:03:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1700	61		mg/Kg	20	10/24/2022 9:40:03 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-27 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:40:00 PM

Lab ID: 2210785-027

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	42	15		mg/Kg	1	10/25/2022 7:03:06 PM
Motor Oil Range Organics (MRO)	61	50		mg/Kg	1	10/25/2022 7:03:06 PM
Surr: DNOP	104	21-129		%Rec	1	10/25/2022 7:03:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/20/2022 5:22:00 AM
Surr: BFB	91.9	37.7-212		%Rec	1	10/20/2022 5:22:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/20/2022 5:22:00 AM
Toluene	ND	0.049		mg/Kg	1	10/20/2022 5:22:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/20/2022 5:22:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/20/2022 5:22:00 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	10/20/2022 5:22:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	710	59		mg/Kg	20	10/24/2022 9:52:28 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 2210785

Date Reported: 10/31/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-28 4ft

Project: Apache 24 Fed 3

Collection Date: 10/13/2022 1:45:00 PM

Lab ID: 2210785-028

Matrix: SOIL

Received Date: 10/15/2022 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	10/21/2022 8:35:03 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	10/21/2022 8:35:03 AM
Surr: DNOP	112	21-129		%Rec	1	10/21/2022 8:35:03 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/19/2022 3:38:43 PM
Surr: BFB	84.7	37.7-212		%Rec	1	10/19/2022 3:38:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/19/2022 3:38:43 PM
Toluene	ND	0.048		mg/Kg	1	10/19/2022 3:38:43 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/19/2022 3:38:43 PM
Xylenes, Total	ND	0.095		mg/Kg	1	10/19/2022 3:38:43 PM
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	10/19/2022 3:38:43 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	600	60		mg/Kg	20	10/24/2022 10:04:53 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical 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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: MB-70994	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 70994		RunNo: 92015							
Prep Date: 10/21/2022	Analysis Date: 10/21/2022		SeqNo: 3301704		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-70994	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 70994		RunNo: 92015							
Prep Date: 10/21/2022	Analysis Date: 10/21/2022		SeqNo: 3301705		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			

Sample ID: MB-70995	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 70995		RunNo: 92015							
Prep Date: 10/21/2022	Analysis Date: 10/21/2022		SeqNo: 3301708		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-70995	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 70995		RunNo: 92015							
Prep Date: 10/21/2022	Analysis Date: 10/21/2022		SeqNo: 3301709		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

Sample ID: MB-70995	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 70995		RunNo: 92023							
Prep Date: 10/21/2022	Analysis Date: 10/23/2022		SeqNo: 3302027		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-70995	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 70995		RunNo: 92023							
Prep Date: 10/21/2022	Analysis Date: 10/23/2022		SeqNo: 3302028		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	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

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

WO#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: MB-70893	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70893	RunNo: 91929								
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297806 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	21	129			

Sample ID: LCS-70893	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70893	RunNo: 91929								
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297807 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	50.00	0	90.1	64.4	127			
Surr: DNOP	4.8		5.000		95.7	21	129			

Sample ID: 2210785-005AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BS22-05 10ft	Batch ID: 70893	RunNo: 91929								
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297809 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	14	47.80	0	98.7	36.1	154			
Surr: DNOP	4.9		4.780		103	21	129			

Sample ID: 2210785-005AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BS22-05 10ft	Batch ID: 70893	RunNo: 91929								
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297810 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	14	47.35	0	93.3	36.1	154	6.58	33.9	
Surr: DNOP	4.7		4.735		100	21	129	0	0	

Sample ID: MB-70926	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70926	RunNo: 91947								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3298585 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		90.9	21	129			

Sample ID: MB-70941	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70941	RunNo: 91947								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3298586 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: MB-70941	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70941	RunNo: 91947								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3298586 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.6		10.00		95.6	21	129			

Sample ID: LCS-70926	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70926	RunNo: 91947								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3298587 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.3		5.000		107	21	129			

Sample ID: LCS-70941	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70941	RunNo: 91947								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3298588 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	15	50.00	0	96.8	64.4	127			
Surr: DNOP	4.9		5.000		98.0	21	129			

Sample ID: MB-70970	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70970	RunNo: 91983								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3300279 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	14		10.00		136	21	129			S

Sample ID: LCS-70970	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70970	RunNo: 91983								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3300285 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.6		5.000		131	21	129			S

Sample ID: MB-70950	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70950	RunNo: 92021								
Prep Date: 10/20/2022	Analysis Date: 10/24/2022	SeqNo: 3301917 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								

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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Apache 24 Fed 3

Sample ID: MB-70950	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 70950		RunNo: 92021							
Prep Date: 10/20/2022	Analysis Date: 10/24/2022		SeqNo: 3301917		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		89.0	21	129			

Sample ID: LCS-70950	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 70950		RunNo: 92021							
Prep Date: 10/20/2022	Analysis Date: 10/24/2022		SeqNo: 3301919		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	15	50.00	0	114	64.4	127			
Surr: DNOP	5.3		5.000		105	21	129			

Sample ID: MB-71024	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 71024		RunNo: 92056							
Prep Date: 10/24/2022	Analysis Date: 10/25/2022		SeqNo: 3307125		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.2		10.00		82.1	21	129			

Sample ID: LCS-71024	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 71024		RunNo: 92056							
Prep Date: 10/24/2022	Analysis Date: 10/25/2022		SeqNo: 3307126		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	15	50.00	0	105	64.4	127			
Surr: DNOP	3.9		5.000		77.5	21	129			

Sample ID: 2210785-027AMS	SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: BS22-27 4ft	Batch ID: 71024		RunNo: 92056							
Prep Date: 10/24/2022	Analysis Date: 10/25/2022		SeqNo: 3307134		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	83	14	47.26	42.48	84.8	36.1	154			
Surr: DNOP	5.0		4.726		105	21	129			

Sample ID: 2210785-027AMSD	SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: BS22-27 4ft	Batch ID: 71024		RunNo: 92056							
Prep Date: 10/24/2022	Analysis Date: 10/25/2022		SeqNo: 3307135		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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Apache 24 Fed 3

Sample ID: 2210785-027AMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: BS22-27 4ft		Batch ID: 71024			RunNo: 92056					
Prep Date: 10/24/2022		Analysis Date: 10/25/2022			SeqNo: 3307135		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	110	15	50.35	42.48	132	36.1	154	27.5	33.9	
Surr: DNOP	5.1		5.035		102	21	129	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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Apache 24 Fed 3

Sample ID: ics-70872	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 70872		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296480		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	80.3	72.3	137			
Surr: BFB	2000		1000		203	37.7	212			

Sample ID: mb-70872	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 70872		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296481		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	980		1000		97.6	37.7	212			

Sample ID: ics-70877	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 70877		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296504		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.4	72.3	137			
Surr: BFB	2000		1000		197	37.7	212			

Sample ID: mb-70877	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 70877		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296505		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.3	37.7	212			

Sample ID: 2210785-005ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BS22-05 10ft	Batch ID: 70877		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296507		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.22	0	103	70	130			
Surr: BFB	2000		969.0		208	37.7	212			

Sample ID: 2210785-005amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BS22-05 10ft	Batch ID: 70877		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296508		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Apache 24 Fed 3

Sample ID: 2210785-005amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range
Client ID: BS22-05 10ft	Batch ID: 70877	RunNo: 91908
Prep Date: 10/17/2022	Analysis Date: 10/18/2022	SeqNo: 3296508 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	25	4.9 24.32 0 103 70 130 0.388 20
Surr: BFB	2100	972.8 216 37.7 212 0 0 S

Sample ID: mb-70900	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range
Client ID: PBS	Batch ID: 70900	RunNo: 91905
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297276 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	870	1000 86.7 37.7 212

Sample ID: lcs-70900	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: LCSS	Batch ID: 70900	RunNo: 91905
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297277 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	25	5.0 25.00 0 99.6 72.3 137
Surr: BFB	1800	1000 182 37.7 212

Sample ID: 2210785-028ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: BS22-28 4ft	Batch ID: 70900	RunNo: 91905
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297279 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	27	4.7 23.65 0 114 70 130
Surr: BFB	1900	946.1 199 37.7 212

Sample ID: 2210785-028amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range
Client ID: BS22-28 4ft	Batch ID: 70900	RunNo: 91905
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297280 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Gasoline Range Organics (GRO)	27	4.8 23.76 0 113 70 130 1.18 20
Surr: BFB	1900	950.6 196 37.7 212 0 0

Sample ID: lcs-70897	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range
Client ID: LCSS	Batch ID: 70897	RunNo: 91932
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3298063 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.

Project: Apache 24 Fed 3

Sample ID: ICS-70897	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 70897		RunNo: 91932							
Prep Date: 10/18/2022	Analysis Date: 10/19/2022		SeqNo: 3298063		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.4	72.3	137			
Surr: BFB	2100		1000		205	37.7	212			

Sample ID: MB-70897	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 70897		RunNo: 91932							
Prep Date: 10/18/2022	Analysis Date: 10/19/2022		SeqNo: 3298064		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	920		1000		92.2	37.7	212			

Sample ID: mb-70932	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 70932		RunNo: 92004							
Prep Date: 10/19/2022	Analysis Date: 10/22/2022		SeqNo: 3300881		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		89.6	37.7	212			

Sample ID: ICS-70932	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 70932		RunNo: 92004							
Prep Date: 10/19/2022	Analysis Date: 10/22/2022		SeqNo: 3300882		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		196	37.7	212			

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 36 of 39

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: ics-70872	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 70872		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296544		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	109	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	112	80	120			
Xylenes, Total	3.3	0.10	3.000	0	109	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	70	130			

Sample ID: mb-70872	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 70872		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296545		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	1.1		1.000		107	70	130			

Sample ID: ics-70877	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 70877		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296570		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	80	120			
Toluene	1.1	0.050	1.000	0	110	80	120			
Ethylbenzene	1.1	0.050	1.000	0	110	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	70	130			

Sample ID: mb-70877	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 70877		RunNo: 91908							
Prep Date: 10/17/2022	Analysis Date: 10/18/2022		SeqNo: 3296571		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		103	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: 2210785-006ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BS22-06 10ft	Batch ID: 70877	RunNo: 91908								
Prep Date: 10/17/2022	Analysis Date: 10/18/2022	SeqNo: 3296574	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.023	0.9390	0	120	68.8	120			S
Toluene	1.2	0.047	0.9390	0	123	73.6	124			
Ethylbenzene	1.2	0.047	0.9390	0	125	72.7	129			
Xylenes, Total	3.5	0.094	2.817	0	123	75.7	126			
Surr: 4-Bromofluorobenzene	0.98		0.9390		105	70	130			

Sample ID: 2210785-006amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BS22-06 10ft	Batch ID: 70877	RunNo: 91908								
Prep Date: 10/17/2022	Analysis Date: 10/18/2022	SeqNo: 3296575	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.023	0.9398	0	122	68.8	120	1.76	20	S
Toluene	1.2	0.047	0.9398	0	123	73.6	124	0.0996	20	
Ethylbenzene	1.2	0.047	0.9398	0	126	72.7	129	1.40	20	
Xylenes, Total	3.5	0.094	2.820	0	123	75.7	126	0.590	20	
Surr: 4-Bromofluorobenzene	0.97		0.9398		103	70	130	0	0	

Sample ID: mb-70900	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 70900	RunNo: 91905								
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297322	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	0.94		1.000		94.4	70	130			

Sample ID: LCS-70900	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 70900	RunNo: 91905								
Prep Date: 10/18/2022	Analysis Date: 10/19/2022	SeqNo: 3297323	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	95.7	80	120			
Toluene	0.98	0.050	1.000	0	97.8	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.4	80	120			
Xylenes, Total	3.0	0.10	3.000	0	98.7	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.4	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2210785

31-Oct-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: lcs-70897	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 70897			RunNo: 91932						
Prep Date: 10/18/2022	Analysis Date: 10/19/2022			SeqNo: 3298117		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.025	1.000	0	120	80	120			S
Toluene	1.2	0.050	1.000	0	120	80	120			
Ethylbenzene	1.2	0.050	1.000	0	119	80	120			
Xylenes, Total	3.5	0.10	3.000	0	118	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	70	130			

Sample ID: MB-70897	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 70897			RunNo: 91932						
Prep Date: 10/18/2022	Analysis Date: 10/19/2022			SeqNo: 3298118		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		105	70	130			

Sample ID: mb-70932	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 70932			RunNo: 92004						
Prep Date: 10/19/2022	Analysis Date: 10/22/2022			SeqNo: 3300943		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.96		1.000		95.5	70	130			

Sample ID: LCS-70932	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 70932			RunNo: 92004						
Prep Date: 10/19/2022	Analysis Date: 10/22/2022			SeqNo: 3300944		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.96		1.000		96.5	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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: **Vertex Resources
Services, Inc.**

Work Order Number: **2210785**

RcptNo: 1

Received By: **Cheyenne Cason** 10/15/2022 8:40:00 AM

Completed By: **Cheyenne Cason** 10/15/2022 9:56:19 AM

Reviewed By: *JN 10/17/22*

Chad

Chad

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH:

(≤ 2 or >12 unless noted)

Adjusted? _____

Checked by: *Chad 10/15/22*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy (Vertex)Mailing Address: Onfile

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:

Project #: 215-02816-01

Project Manager:

Sampler: Fernando LedvigezOn Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 11-0-1,1 (°C)

Container Type and #

Preservative Type

HEAL No.

Date

Time

Matrix

Sample Name

Date

Time

Matrix

Sample Name

Date

Time

Matrix

Sample Name

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

October 28, 2022

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX

RE: Apache 24 Fed 3

OrderNo.: 2210840

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 24 sample(s) on 10/18/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-01 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 9:45:00 AM

Lab ID: 2210840-001

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 1:37:11 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/21/2022 1:37:11 PM
Surr: DNOP	76.6	21-129		%Rec	1	10/21/2022 1:37:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/20/2022 5:06:59 PM
Surr: BFB	90.3	37.7-212		%Rec	1	10/20/2022 5:06:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	10/20/2022 5:06:59 PM
Toluene	ND	0.046		mg/Kg	1	10/20/2022 5:06:59 PM
Ethylbenzene	ND	0.046		mg/Kg	1	10/20/2022 5:06:59 PM
Xylenes, Total	ND	0.092		mg/Kg	1	10/20/2022 5:06:59 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	10/20/2022 5:06:59 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	310	60		mg/Kg	20	10/24/2022 12:06:03 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-02 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 9:50:00 AM

Lab ID: 2210840-002

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 1:50:41 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/21/2022 1:50:41 PM
Surr: DNOP	81.6	21-129		%Rec	1	10/21/2022 1:50:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/20/2022 5:30:36 PM
Surr: BFB	92.3	37.7-212		%Rec	1	10/20/2022 5:30:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	10/20/2022 5:30:36 PM
Toluene	ND	0.047		mg/Kg	1	10/20/2022 5:30:36 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/20/2022 5:30:36 PM
Xylenes, Total	ND	0.094		mg/Kg	1	10/20/2022 5:30:36 PM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	10/20/2022 5:30:36 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	390	60		mg/Kg	20	10/24/2022 12:18:23 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-03 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 9:55:00 AM

Lab ID: 2210840-003

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 2:04:01 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/21/2022 2:04:01 PM
Surr: DNOP	81.0	21-129		%Rec	1	10/21/2022 2:04:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/20/2022 5:54:16 PM
Surr: BFB	89.0	37.7-212		%Rec	1	10/20/2022 5:54:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	10/20/2022 5:54:16 PM
Toluene	ND	0.047		mg/Kg	1	10/20/2022 5:54:16 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/20/2022 5:54:16 PM
Xylenes, Total	ND	0.094		mg/Kg	1	10/20/2022 5:54:16 PM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	10/20/2022 5:54:16 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	220	60		mg/Kg	20	10/24/2022 12:30:45 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-04 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:00:00 AM

Lab ID: 2210840-004

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 2:17:29 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/21/2022 2:17:29 PM
Surr: DNOP	90.3	21-129		%Rec	1	10/21/2022 2:17:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/20/2022 6:17:50 PM
Surr: BFB	90.4	37.7-212		%Rec	1	10/20/2022 6:17:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 6:17:50 PM
Toluene	ND	0.047		mg/Kg	1	10/20/2022 6:17:50 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/20/2022 6:17:50 PM
Xylenes, Total	ND	0.094		mg/Kg	1	10/20/2022 6:17:50 PM
Surr: 4-Bromofluorobenzene	95.7	70-130		%Rec	1	10/20/2022 6:17:50 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	240	60		mg/Kg	20	10/24/2022 12:43:05 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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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-05 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:05:00 AM

Lab ID: 2210840-005

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 2:30:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/21/2022 2:30:56 PM
Surr: DNOP	94.8	21-129		%Rec	1	10/21/2022 2:30:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/20/2022 6:41:22 PM
Surr: BFB	89.1	37.7-212		%Rec	1	10/20/2022 6:41:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 6:41:22 PM
Toluene	ND	0.047		mg/Kg	1	10/20/2022 6:41:22 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/20/2022 6:41:22 PM
Xylenes, Total	ND	0.095		mg/Kg	1	10/20/2022 6:41:22 PM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	10/20/2022 6:41:22 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	260	60		mg/Kg	20	10/24/2022 12:55:26 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-06 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:10:00 AM

Lab ID: 2210840-006

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 2:44:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/21/2022 2:44:37 PM
Surr: DNOP	80.8	21-129		%Rec	1	10/21/2022 2:44:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/20/2022 7:04:57 PM
Surr: BFB	90.5	37.7-212		%Rec	1	10/20/2022 7:04:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 7:04:57 PM
Toluene	ND	0.049		mg/Kg	1	10/20/2022 7:04:57 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/20/2022 7:04:57 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/20/2022 7:04:57 PM
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	10/20/2022 7:04:57 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	220	59		mg/Kg	20	10/24/2022 1:07:47 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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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-07 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:15:00 AM

Lab ID: 2210840-007

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 2:58:22 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/21/2022 2:58:22 PM
Surr: DNOP	89.7	21-129		%Rec	1	10/21/2022 2:58:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/20/2022 7:28:36 PM
Surr: BFB	93.2	37.7-212		%Rec	1	10/20/2022 7:28:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/20/2022 7:28:36 PM
Toluene	ND	0.049		mg/Kg	1	10/20/2022 7:28:36 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/20/2022 7:28:36 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/20/2022 7:28:36 PM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	10/20/2022 7:28:36 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	10/24/2022 1:20:07 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-08 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:20:00 AM

Lab ID: 2210840-008

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 3:11:52 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/21/2022 3:11:52 PM
Surr: DNOP	80.9	21-129		%Rec	1	10/21/2022 3:11:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/20/2022 7:52:14 PM
Surr: BFB	91.8	37.7-212		%Rec	1	10/20/2022 7:52:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 7:52:14 PM
Toluene	ND	0.048		mg/Kg	1	10/20/2022 7:52:14 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/20/2022 7:52:14 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/20/2022 7:52:14 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%Rec	1	10/20/2022 7:52:14 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	10/24/2022 1:57:09 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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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-09 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:25:00 AM

Lab ID: 2210840-009

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 3:25:32 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/21/2022 3:25:32 PM
Surr: DNOP	88.7	21-129		%Rec	1	10/21/2022 3:25:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/20/2022 8:15:49 PM
Surr: BFB	91.1	37.7-212		%Rec	1	10/20/2022 8:15:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 8:15:49 PM
Toluene	ND	0.049		mg/Kg	1	10/20/2022 8:15:49 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/20/2022 8:15:49 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/20/2022 8:15:49 PM
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	10/20/2022 8:15:49 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	10/24/2022 2:09:29 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.		

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-10 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:30:00 AM

Lab ID: 2210840-010

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 3:39:05 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/21/2022 3:39:05 PM
Surr: DNOP	81.7	21-129		%Rec	1	10/21/2022 3:39:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/20/2022 9:26:43 PM
Surr: BFB	87.1	37.7-212		%Rec	1	10/20/2022 9:26:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 9:26:43 PM
Toluene	ND	0.049		mg/Kg	1	10/20/2022 9:26:43 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/20/2022 9:26:43 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/20/2022 9:26:43 PM
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	10/20/2022 9:26:43 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	10/24/2022 2:21:50 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-11 0-4ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:35:00 AM

Lab ID: 2210840-011

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 3:52:36 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/21/2022 3:52:36 PM
Surr: DNOP	91.0	21-129		%Rec	1	10/21/2022 3:52:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/20/2022 9:50:17 PM
Surr: BFB	89.6	37.7-212		%Rec	1	10/20/2022 9:50:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/20/2022 9:50:17 PM
Toluene	ND	0.050		mg/Kg	1	10/20/2022 9:50:17 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/20/2022 9:50:17 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/20/2022 9:50:17 PM
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	10/20/2022 9:50:17 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	210	60		mg/Kg	20	10/24/2022 2:34:10 PM

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

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

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-12 0-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:40:00 AM

Lab ID: 2210840-012

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 4:06:19 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/21/2022 4:06:19 PM
Surr: DNOP	94.7	21-129		%Rec	1	10/21/2022 4:06:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/20/2022 10:13:49 PM
Surr: BFB	90.7	37.7-212		%Rec	1	10/20/2022 10:13:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 10:13:49 PM
Toluene	ND	0.048		mg/Kg	1	10/20/2022 10:13:49 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/20/2022 10:13:49 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/20/2022 10:13:49 PM
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	10/20/2022 10:13:49 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	390	60		mg/Kg	20	10/24/2022 2:46:32 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.		

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-13 0-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:45:00 AM

Lab ID: 2210840-013

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 4:19:46 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/21/2022 4:19:46 PM
Surr: DNOP	79.0	21-129		%Rec	1	10/21/2022 4:19:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/20/2022 10:37:18 PM
Surr: BFB	91.4	37.7-212		%Rec	1	10/20/2022 10:37:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/20/2022 10:37:18 PM
Toluene	ND	0.048		mg/Kg	1	10/20/2022 10:37:18 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/20/2022 10:37:18 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/20/2022 10:37:18 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	10/20/2022 10:37:18 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	490	60		mg/Kg	20	10/24/2022 2:58:53 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-14 0-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:50:00 AM

Lab ID: 2210840-014

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 5:15:30 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	10/21/2022 5:15:30 PM
Surr: DNOP	107	21-129		%Rec	1	10/21/2022 5:15:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/20/2022 11:00:51 PM
Surr: BFB	89.5	37.7-212		%Rec	1	10/20/2022 11:00:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/20/2022 11:00:51 PM
Toluene	ND	0.050		mg/Kg	1	10/20/2022 11:00:51 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/20/2022 11:00:51 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/20/2022 11:00:51 PM
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	10/20/2022 11:00:51 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	240	60		mg/Kg	20	10/24/2022 11:48:50 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-15 0-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 10:55:00 AM

Lab ID: 2210840-015

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 5:59:32 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/21/2022 5:59:32 PM
Surr: DNOP	106	21-129		%Rec	1	10/21/2022 5:59:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/21/2022 12:11:26 AM
Surr: BFB	91.3	37.7-212		%Rec	1	10/21/2022 12:11:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/21/2022 12:11:26 AM
Toluene	ND	0.050		mg/Kg	1	10/21/2022 12:11:26 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/21/2022 12:11:26 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/21/2022 12:11:26 AM
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	10/21/2022 12:11:26 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	410	60		mg/Kg	20	10/24/2022 12:26:04 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-16 0-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:00:00 AM

Lab ID: 2210840-016

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 6:14:36 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/21/2022 6:14:36 PM
Surr: DNOP	92.6	21-129		%Rec	1	10/21/2022 6:14:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/21/2022 1:21:55 AM
Surr: BFB	91.8	37.7-212		%Rec	1	10/21/2022 1:21:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/21/2022 1:21:55 AM
Toluene	ND	0.048		mg/Kg	1	10/21/2022 1:21:55 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/21/2022 1:21:55 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/21/2022 1:21:55 AM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	10/21/2022 1:21:55 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	2200	60		mg/Kg	20	10/24/2022 1:03:19 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.		

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-17 0-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:05:00 AM

Lab ID: 2210840-017

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	13		mg/Kg	1	10/21/2022 6:29:40 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	10/21/2022 6:29:40 PM
Surr: DNOP	115	21-129		%Rec	1	10/21/2022 6:29:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/21/2022 1:45:25 AM
Surr: BFB	93.2	37.7-212		%Rec	1	10/21/2022 1:45:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	10/21/2022 1:45:25 AM
Toluene	ND	0.046		mg/Kg	1	10/21/2022 1:45:25 AM
Ethylbenzene	ND	0.046		mg/Kg	1	10/21/2022 1:45:25 AM
Xylenes, Total	ND	0.093		mg/Kg	1	10/21/2022 1:45:25 AM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	10/21/2022 1:45:25 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	530	60		mg/Kg	20	10/24/2022 1:15:43 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-18 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:10:00 AM

Lab ID: 2210840-018

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 6:44:42 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/21/2022 6:44:42 PM
Surr: DNOP	108	21-129		%Rec	1	10/21/2022 6:44:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/21/2022 2:08:55 AM
Surr: BFB	92.9	37.7-212		%Rec	1	10/21/2022 2:08:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/21/2022 2:08:55 AM
Toluene	ND	0.048		mg/Kg	1	10/21/2022 2:08:55 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/21/2022 2:08:55 AM
Xylenes, Total	ND	0.097		mg/Kg	1	10/21/2022 2:08:55 AM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	10/21/2022 2:08:55 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	550	61		mg/Kg	20	10/24/2022 1:28:08 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-19 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:15:00 AM

Lab ID: 2210840-019

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 6:59:43 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/21/2022 6:59:43 PM
Surr: DNOP	106	21-129		%Rec	1	10/21/2022 6:59:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/21/2022 2:32:14 AM
Surr: BFB	93.6	37.7-212		%Rec	1	10/21/2022 2:32:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/21/2022 2:32:14 AM
Toluene	ND	0.048		mg/Kg	1	10/21/2022 2:32:14 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/21/2022 2:32:14 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/21/2022 2:32:14 AM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	10/21/2022 2:32:14 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	630	60		mg/Kg	20	10/24/2022 1:40:33 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-20 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:20:00 AM

Lab ID: 2210840-020

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 7:14:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/21/2022 7:14:31 PM
Surr: DNOP	87.3	21-129		%Rec	1	10/21/2022 7:14:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/21/2022 3:19:24 AM
Surr: BFB	93.3	37.7-212		%Rec	1	10/21/2022 3:19:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	10/21/2022 3:19:24 AM
Toluene	ND	0.049		mg/Kg	1	10/21/2022 3:19:24 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/21/2022 3:19:24 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/21/2022 3:19:24 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	10/21/2022 3:19:24 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	230	60		mg/Kg	20	10/24/2022 2:17:47 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.		

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-21 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:25:00 AM

Lab ID: 2210840-021

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 7:29:25 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/21/2022 7:29:25 PM
Surr: DNOP	89.9	21-129		%Rec	1	10/21/2022 7:29:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/21/2022 3:42:51 AM
Surr: BFB	93.4	37.7-212		%Rec	1	10/21/2022 3:42:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/21/2022 3:42:51 AM
Toluene	ND	0.047		mg/Kg	1	10/21/2022 3:42:51 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/21/2022 3:42:51 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/21/2022 3:42:51 AM
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	10/21/2022 3:42:51 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	63	60		mg/Kg	20	10/24/2022 2:30:12 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.		

Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-22 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:30:00 AM

Lab ID: 2210840-022

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	41	14		mg/Kg	1	10/21/2022 7:44:24 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/21/2022 7:44:24 PM
Surr: DNOP	101	21-129		%Rec	1	10/21/2022 7:44:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/21/2022 4:06:19 AM
Surr: BFB	87.4	37.7-212		%Rec	1	10/21/2022 4:06:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/21/2022 4:06:19 AM
Toluene	ND	0.049		mg/Kg	1	10/21/2022 4:06:19 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/21/2022 4:06:19 AM
Xylenes, Total	ND	0.097		mg/Kg	1	10/21/2022 4:06:19 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	1	10/21/2022 4:06:19 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	470	60		mg/Kg	20	10/24/2022 2:42:37 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 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-23 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:35:00 AM

Lab ID: 2210840-023

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	10/21/2022 7:59:09 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/21/2022 7:59:09 PM
Surr: DNOP	90.6	21-129		%Rec	1	10/21/2022 7:59:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/21/2022 4:29:51 AM
Surr: BFB	88.6	37.7-212		%Rec	1	10/21/2022 4:29:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	10/21/2022 4:29:51 AM
Toluene	ND	0.047		mg/Kg	1	10/21/2022 4:29:51 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/21/2022 4:29:51 AM
Xylenes, Total	ND	0.094		mg/Kg	1	10/21/2022 4:29:51 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	10/21/2022 4:29:51 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	250	60		mg/Kg	20	10/24/2022 2:55:01 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.		

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Analytical Report

Lab Order 2210840

Date Reported: 10/28/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WS22-24 4-10ft

Project: Apache 24 Fed 3

Collection Date: 10/14/2022 11:40:00 AM

Lab ID: 2210840-024

Matrix: SOIL

Received Date: 10/18/2022 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	10/21/2022 8:13:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/21/2022 8:13:52 PM
Surr: DNOP	83.8	21-129		%Rec	1	10/21/2022 8:13:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/22/2022 4:31:25 AM
Surr: BFB	91.3	37.7-212		%Rec	1	10/22/2022 4:31:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	10/22/2022 4:31:25 AM
Toluene	ND	0.047		mg/Kg	1	10/22/2022 4:31:25 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/22/2022 4:31:25 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/22/2022 4:31:25 AM
Surr: 4-Bromofluorobenzene	95.9	70-130		%Rec	1	10/22/2022 4:31:25 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	210	60		mg/Kg	20	10/24/2022 3:07:26 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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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2210840

28-Oct-22

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: MB-71010	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 71010	RunNo: 92046								
Prep Date: 10/24/2022	Analysis Date: 10/24/2022	SeqNo: 3303044	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-71010	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 71010	RunNo: 92046								
Prep Date: 10/24/2022	Analysis Date: 10/24/2022	SeqNo: 3303045	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	101	90	110			

Sample ID: MB-71012	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 71012	RunNo: 92048								
Prep Date: 10/24/2022	Analysis Date: 10/24/2022	SeqNo: 3303172	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-71012	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 71012	RunNo: 92048								
Prep Date: 10/24/2022	Analysis Date: 10/24/2022	SeqNo: 3303173	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.5	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.		

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

WO#: 2210840

28-Oct-22

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: MB-70958	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70958	RunNo: 91984								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3300313 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		114	21	129			

Sample ID: LCS-70958	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70958	RunNo: 91984								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3300314 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	15	50.00	0	108	64.4	127			
Surr: DNOP	5.2		5.000		104	21	129			

Sample ID: MB-70965	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 70965	RunNo: 91984								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3301050 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.9		10.00		99.5	21	129			

Sample ID: LCS-70965	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 70965	RunNo: 91984								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3301051 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	15	50.00	0	98.0	64.4	127			
Surr: DNOP	4.7		5.000		93.1	21	129			

Sample ID: 2210840-014AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: WS22-14 0-10ft	Batch ID: 70965	RunNo: 91984								
Prep Date: 10/20/2022	Analysis Date: 10/21/2022	SeqNo: 3301053 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	49.85	0	94.6	36.1	154			
Surr: DNOP	4.3		4.985		85.8	21	129			

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#: 2210840

28-Oct-22

Client: Devon Energy

Project: Apache 24 Fed 3

Sample ID: 2210840-014AMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: WS22-14 0-10ft		Batch ID: 70965		RunNo: 91984						
Prep Date: 10/20/2022		Analysis Date: 10/21/2022		SeqNo: 3301054		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	49.21	0	102	36.1	154	6.05	33.9	
Surr: DNOP	4.3		4.921		87.4	21	129	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#: 2210840

28-Oct-22

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: mb-70903	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 70903			RunNo: 91963						
Prep Date: 10/18/2022	Analysis Date: 10/20/2022			SeqNo: 3298937		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		89.9	37.7	212			

Sample ID: lcs-70903	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 70903			RunNo: 91963						
Prep Date: 10/18/2022	Analysis Date: 10/20/2022			SeqNo: 3298938		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.9	72.3	137			
Surr: BFB	1400		1000		138	37.7	212			

Sample ID: mb-70915	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 70915			RunNo: 91963						
Prep Date: 10/19/2022	Analysis Date: 10/20/2022			SeqNo: 3298961		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	910		1000		91.1	37.7	212			

Sample ID: lcs-70915	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 70915			RunNo: 91963						
Prep Date: 10/19/2022	Analysis Date: 10/20/2022			SeqNo: 3298962		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	72.3	137			
Surr: BFB	2000		1000		196	37.7	212			

Sample ID: 2210840-014ams	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: WS22-14 0-10ft	Batch ID: 70915			RunNo: 91963						
Prep Date: 10/19/2022	Analysis Date: 10/20/2022			SeqNo: 3298964		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	24.98	0	106	70	130			
Surr: BFB	2000		999.0		196	37.7	212			

Sample ID: 2210840-014amsd	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: WS22-14 0-10ft	Batch ID: 70915			RunNo: 91963						
Prep Date: 10/19/2022	Analysis Date: 10/20/2022			SeqNo: 3298965		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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2210840

28-Oct-22

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: 2210840-014amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: WS22-14 0-10ft	Batch ID: 70915	RunNo: 91963								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3298965		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	1.15	20	
Surr: BFB	2000		1000		197	37.7	212	0	0	

Sample ID: mb-70932	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 70932	RunNo: 92004								
Prep Date: 10/19/2022	Analysis Date: 10/22/2022	SeqNo: 3300881		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		89.6	37.7	212			

Sample ID: lcs-70932	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 70932	RunNo: 92004								
Prep Date: 10/19/2022	Analysis Date: 10/22/2022	SeqNo: 3300882		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		196	37.7	212			

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#: 2210840

28-Oct-22

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: mb-70903	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 70903	RunNo: 91963								
Prep Date: 10/18/2022	Analysis Date: 10/20/2022	SeqNo: 3298984 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		96.8	70	130			

Sample ID: LCS-70903	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 70903	RunNo: 91963								
Prep Date: 10/18/2022	Analysis Date: 10/20/2022	SeqNo: 3298985 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	105	80	120			
Toluene	1.1	0.050	1.000	0	107	80	120			
Ethylbenzene	1.1	0.050	1.000	0	106	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	70	130			

Sample ID: mb-70915	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 70915	RunNo: 91963								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3299008 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.9	70	130			

Sample ID: LCS-70915	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 70915	RunNo: 91963								
Prep Date: 10/19/2022	Analysis Date: 10/20/2022	SeqNo: 3299009 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	80	120			
Toluene	1.0	0.050	1.000	0	104	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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#: 2210840

28-Oct-22

Client: Devon Energy
Project: Apache 24 Fed 3

Sample ID: 2210840-015ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: WS22-15 0-10ft	Batch ID: 70915	RunNo: 91963								
Prep Date: 10/19/2022	Analysis Date: 10/21/2022	SeqNo: 3299012	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9901	0	112	68.8	120			
Toluene	1.1	0.050	0.9901	0	114	73.6	124			
Ethylbenzene	1.1	0.050	0.9901	0	114	72.7	129			
Xylenes, Total	3.4	0.099	2.970	0.01835	114	75.7	126			
Surr: 4-Bromofluorobenzene	0.98		0.9901		99.4	70	130			

Sample ID: 2210840-015amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: WS22-15 0-10ft	Batch ID: 70915	RunNo: 91963								
Prep Date: 10/19/2022	Analysis Date: 10/21/2022	SeqNo: 3299013	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9940	0	111	68.8	120	0.968	20	
Toluene	1.1	0.050	0.9940	0	113	73.6	124	0.607	20	
Ethylbenzene	1.1	0.050	0.9940	0	113	72.7	129	0.317	20	
Xylenes, Total	3.4	0.099	2.982	0.01835	112	75.7	126	0.904	20	
Surr: 4-Bromofluorobenzene	1.0		0.9940		101	70	130	0	0	

Sample ID: mb-70932	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 70932	RunNo: 92004								
Prep Date: 10/19/2022	Analysis Date: 10/22/2022	SeqNo: 3300943	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.96		1.000		95.5	70	130			

Sample ID: LCS-70932	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 70932	RunNo: 92004								
Prep Date: 10/19/2022	Analysis Date: 10/22/2022	SeqNo: 3300944	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.96		1.000		96.5	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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: 2210840

RcptNo: 1

Received By: Juan Rojas

10/18/2022 7:30:00 AM

Completed By: Sean Livingston

10/18/2022 9:02:53 AM

Reviewed By:

jn 10/18/22

Juan Rojas

Sean Livingston

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: KPA 10.18.22

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.7	Good				

Chain-of-Custody Record

Client: Devon Energy (Vertex)Mailing Address: Onfile

Phone #: _____

Email or Fax#: _____

QA/QC Package:

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

Project Manager:

Vent StallingsSampler: Fernando RodriguezOn Ice: ☐ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 0.1 to 1 = 0.7 (°C)

Container Type and #

Preservative Type

HEAL No.

(°C)

001

002

003

004

005

006

007

008

009

010

011

012

Date

10/14 9:45

10/14 9:50

10/14 9:55

10/14 10:00

10/14 10:05

10/14 10:10

10/14 10:15

10/14 10:20

10/14 10:25

10/14 10:30

10/14 10:35

10/14 10:40

Sample Name

WS22-01 0-4ft

WS22-02 0-4ft

WS22-03 0-4ft

WS22-04 0-4ft

WS22-05 0-4ft

WS22-06 0-4ft

WS22-07 0-4ft

WS22-08 0-4ft

WS22-09 0-4ft

WS22-10 0-4ft

WS22-11 0-4ft

WS22-12 0-4ft

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Received by:

Chain-of-Custody Record

Client: Devon Energy (Vertex)Mailing Address: On file

Phone #:

Email or Fax#:

QA/QC Package:

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

Project Manager:

Kent StallingsSampler: Fernando RodriguezOn Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 10.6 to 15.7 (°C)

Container Type and #

Preservative Type

HEAL No.

013

014

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

November 22, 2022

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Apache 24 Fed 3

OrderNo.: 2211715

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/11/2022 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2211715

Date Reported: 11/22/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BS22-10 10.5'

Project: Apache 24 Fed 3

Collection Date: 11/9/2022 9:00:00 AM

Lab ID: 2211715-001

Matrix: SOIL

Received Date: 11/11/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/15/2022 10:54:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/15/2022 10:54:21 AM
Surr: DNOP	92.1	21-129		%Rec	1	11/15/2022 10:54:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	11/15/2022 4:53:00 AM
Surr: BFB	100	37.7-212		%Rec	1	11/15/2022 4:53:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	11/15/2022 4:53:00 AM
Toluene	ND	0.046		mg/Kg	1	11/15/2022 4:53:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	11/15/2022 4:53:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	11/15/2022 4:53:00 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	11/15/2022 4:53:00 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	600	60		mg/Kg	20	11/14/2022 8:46:20 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.		

Analytical Report

Lab Order 2211715

Date Reported: 11/22/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WS22-16 0-10'

Project: Apache 24 Fed 3

Collection Date: 11/9/2022 9:05:00 AM

Lab ID: 2211715-002

Matrix: SOIL

Received Date: 11/11/2022 10:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/15/2022 11:07:40 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/15/2022 11:07:40 AM
Surr: DNOP	88.4	21-129		%Rec	1	11/15/2022 11:07:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/15/2022 5:13:00 AM
Surr: BFB	100	37.7-212		%Rec	1	11/15/2022 5:13:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	11/15/2022 5:13:00 AM
Toluene	ND	0.047		mg/Kg	1	11/15/2022 5:13:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	11/15/2022 5:13:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	11/15/2022 5:13:00 AM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	11/15/2022 5:13:00 AM
EPA METHOD 300.0: ANIONS						Analyst: NAI
Chloride	540	60		mg/Kg	20	11/14/2022 8:58:44 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2211715

22-Nov-22

Client: Vertex Resources Services, Inc.

Project: Apache 24 Fed 3

Sample ID: MB-71490	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 71490	RunNo: 92581
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329330 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-71490	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 71490	RunNo: 92581
Prep Date: 11/14/2022	Analysis Date: 11/14/2022	SeqNo: 3329331 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	15	1.5 15.00 0 97.6 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#: 2211715

22-Nov-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: MB-71501	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 71501	RunNo: 92578								
Prep Date: 11/15/2022	Analysis Date: 11/15/2022	SeqNo: 3329420 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.8		10.00		98.0	21	129			

Sample ID: LCS-71501	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 71501	RunNo: 92578								
Prep Date: 11/15/2022	Analysis Date: 11/15/2022	SeqNo: 3329421 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	15	50.00	0	102	64.4	127			
Surr: DNOP	4.8		5.000		96.1	21	129			

Sample ID: 2211715-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BS22-10 10.5'	Batch ID: 71501	RunNo: 92578								
Prep Date: 11/15/2022	Analysis Date: 11/15/2022	SeqNo: 3329430 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	15	49.80	0	94.9	36.1	154			
Surr: DNOP	4.7		4.980		94.3	21	129			

Sample ID: 2211715-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BS22-10 10.5'	Batch ID: 71501	RunNo: 92578								
Prep Date: 11/15/2022	Analysis Date: 11/15/2022	SeqNo: 3329431 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	14	47.80	0	112	36.1	154	12.7	33.9	
Surr: DNOP	4.7		4.780		97.3	21	129	0	0	

Sample ID: MB-71492	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 71492	RunNo: 92578								
Prep Date: 11/14/2022	Analysis Date: 11/15/2022	SeqNo: 3331679 Units: %Rec								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		116	21	129			

Sample ID: LCS-71492	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 71492	RunNo: 92578								
Prep Date: 11/14/2022	Analysis Date: 11/15/2022	SeqNo: 3331680 Units: %Rec								
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#: 2211715
22-Nov-22

Client: Vertex Resources Services, Inc.
Project: Apache 24 Fed 3

Sample ID: LCS-71492	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 71492	RunNo: 92578								
Prep Date: 11/14/2022	Analysis Date: 11/15/2022	SeqNo: 3331680		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.0		5.000		119	21	129			

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#: 2211715
22-Nov-22

Client: Vertex Resources Services, Inc.
Project: Apache 24 Fed 3

Sample ID: Ics-71448	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 71448	RunNo: 92569								
Prep Date: 11/11/2022	Analysis Date: 11/14/2022	SeqNo: 3328730			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.6	72.3	137			
Surr: BFB	2300		1000		227	37.7	212			S

Sample ID: mb-71448	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 71448	RunNo: 92569								
Prep Date: 11/11/2022	Analysis Date: 11/14/2022	SeqNo: 3328731			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.2	37.7	212			

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#: 2211715

22-Nov-22

Client: Vertex Resources Services, Inc.**Project:** Apache 24 Fed 3

Sample ID: lcs-71448	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 71448			RunNo: 92569						
Prep Date: 11/11/2022	Analysis Date: 11/14/2022			SeqNo: 3328782		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	111	80	120			
Xylenes, Total	3.3	0.10	3.000	0	111	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	70	130			

Sample ID: mb-71448	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 71448			RunNo: 92569						
Prep Date: 11/11/2022	Analysis Date: 11/14/2022			SeqNo: 3328783		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	1.1		1.000		109	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of 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 7 of 7



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

Sample Log-In Check List

Client Name: **Vertex Resources Services, Inc.**

Work Order Number: **2211715**

RcptNo: **1**

Received By: **Juan Rojas**

11/11/2022 10:30:00 AM

Juan Rojas

Completed By: **Cheyenne Cason**

11/11/2022 10:45:55 AM

Cheyenne Cason

Reviewed By: **DAD 11/14/22**

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: *Juan Rojas*

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	1.1	Good	Not Present			

APPENDIX F – Depth to Groundwater Drilling



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

Apeche 24

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) C-4773 POD1		WELL TAG ID NO.		OSE FILE NO(S) C04773		
	WELL OWNER NAME(S) Devon Energy Resources				PHONE (OPTIONAL)		
	WELL OWNER MAILING ADDRESS 205 E. Bender Road # 105				CITY Hobbs	STATE NM	
					ZIP 88240		
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 22	SECONDS 18.7752	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84	
LONGITUDE -103 49 34.7196 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 12-15-23	DRILLING ENDED 12-15-23	DEPTH OF COMPLETED WELL (FT) 55'	BORE HOLE DEPTH (FT) 55'	DEPTH WATER FIRST ENCOUNTERED (FT) Dry		
	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) Dry	DATE STATIC MEASURED 12-18-23	
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:				CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>		
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:						
	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)
	FROM	TO					
	0	45'	6"	2" PVC SCH40	Thread	2"	SCH40
	45'	55"	6"	2" PVC SCH40	Thread	2"	SCH40
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE - RANGE BY INTERVAL <i>*(if using Centralizers for Artesian wells- indicate the spacing below)*</i>	AMOUNT (cubic feet)	METHOD OF PLACEMENT	
	FROM	TO					
				None Pulled and Plugged			
FOR OSE INTERNAL USE							
FILE NO.		POD NO.		TRN NO.			
LOCATION				WELL TAG ID NO.		PAGE 1 OF 2	

[illegible]

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 09/22/2022)	
FILE NO.	POD NO.	TRN NO.	
LOCATION	WELL TAG ID NO		PAGE 2 OF 2



PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: C-04773 POD1

Well owner: Devon Energy Resources

Phone No.: _____

Mailing address: 205 E. Bender Road # 150

City: Hobbs

State: _____

NM

Zip code: 88240

II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: Vision Resources
- 2) New Mexico Well Driller License No.: 1833 Expiration Date: 10-7-25
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jason Maley
- 4) Date well plugging began: 12-21-23 Date well plugging concluded: 12-21-23
- 5) GPS Well Location: Latitude: 32 deg, 22 min, 18.7752 sec
Longitude: -103 deg, 49 min, 34.7196 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 55' ft below ground level (bgl),
by the following manner: Tape
- 7) Static water level measured at initiation of plugging: Dry ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 9-21-23
- 9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

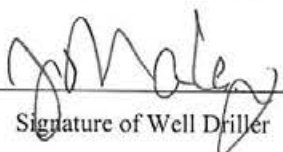
For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
0		77.50	77.50	Tremie Pipe Open Hole	
	Wyoming Bentonite				
55'					

MULTIPLY	BY	AND OBTAIN
cubic feet x 7.4805	=	gallons
cubic yards x 201.97	=	gallons

III. SIGNATURE:

I, Jason Maley, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.


Signature of Well Driller

1/10/24
Date

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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 321577

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 321577
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nRM1933039312
Incident Name	NRM1933039312 APACHE 24 I FEDERAL 3 @ 30-015-33080
Incident Type	Oil Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-015-33080] APACHE 24 FEDERAL #003

Location of Release Source	
Please answer all the questions in this group.	
Site Name	APACHE 24 I FEDERAL 3
Date Release Discovered	10/06/2019
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Equipment Failure Other (Specify) Crude Oil Released: 60 BBL Recovered: 60 BBL Lost: 0 BBL.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	Not answered.
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 321577

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	321577
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	No, according to supplied volumes this does not appear to be a "gas only" report.
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	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: 03/08/2024
--	--

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QUESTIONS, Page 3

Action 321577

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 321577
	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	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 500 and 1000 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between ½ and 1 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Between 1 and 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	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No

Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)

Chloride (EPA 300.0 or SM4500 Cl B)	19000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	20230
GRO+DRO (EPA SW-846 Method 8015M)	12030
BTEX (EPA SW-846 Method 8021B or 8260B)	0.1
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	09/09/2022
On what date will (or did) the final sampling or liner inspection occur	11/09/2022
On what date will (or was) the remediation complete(d)	12/15/2022
What is the estimated surface area (in square feet) that will be reclaimed	2726
What is the estimated volume (in cubic yards) that will be reclaimed	1531
What is the estimated surface area (in square feet) that will be remediated	5265
What is the estimated volume (in cubic yards) that will be remediated	1531

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 321577

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 321577
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
<i>Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.</i>	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
<i>(Select all answers below that apply.)</i>	
(Ex Situ) Excavation and off-site disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for off-site disposal	R360 Artesia LLC LANDFARM [FEEM0112340644]
OR which OCD approved well (API) will be used for off-site disposal	Not answered.
OR is the off-site disposal site, to be used, out-of-state	Not answered.
OR is the off-site disposal site, to be used, an NMED facility	Not answered.
(Ex Situ) Excavation and on-site remediation (i.e. On-Site Land Farms)	Not answered.
(In Situ) Soil Vapor Extraction	Not answered.
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	Not answered.
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	Not answered.
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	Not answered.
Ground Water Abatement pursuant to 19.15.30 NMAC	Not answered.
OTHER (Non-listed remedial process)	Not answered.
<i>Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.</i>	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmn.com Date: 03/08/2024
<i>The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.</i>	

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QUESTIONS, Page 5

Action 321577

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:
	6137
	Action Number:
	321577
Action Type:	
[C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

QUESTIONS

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

District I

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QUESTIONS, Page 6

Action 321577

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	321577
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	321594
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	11/09/2022
What was the (estimated) number of samples that were to be gathered	2
What was the sampling surface area in square feet	200

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	5265
What was the total volume (cubic yards) remediated	1531
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	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: 03/08/2024
--	--

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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, Page 7

Action 321577

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:
	6137
	Action Number:
	321577
Action Type:	
[C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

QUESTIONS

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

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

Action 321577

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 321577
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your Remediation Closure Report for Incident #NRM1933039312 APACHE 24 I FEDERAL 3, thank you. This Remediation Closure Report is approved.	4/29/2024