

Spill Volume(Bbls) Calculator		
<i>Inputs in blue, Outputs in red</i>		
Contaminated Soil measurement		
Length(Ft)	Width(Ft)	Depth(Ft)
<u>6</u>	<u>5.000</u>	<u>0.917</u>
Cubic Feet of Soil Impacted		<u>27.510</u>
Barrels of Soil Impacted		<u>4.90</u>
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		<u>0.74</u>
Saturation	Fluid present with shovel/backhoe	
Estimated Barrels of Oil Released		0.74
Free Standing Fluid Only		
Length(Ft)	Width(Ft)	Depth(Ft)
<u>6</u>	<u>5.000</u>	<u>1.083</u>
Standing fluid		<u>5.779</u>
Total fluids spilled		6.514

Spill Volume(Bbls) Calculator	
<i>Inputs in blue, Outputs in red</i>	
Contaminated Soil measurement	
Area (square feet)	Depth(inches)
<u>3005.213</u>	<u>0.500</u>
Cubic Feet of Soil Impacted	<u>125.217</u>
Barrels of Soil Impacted	<u>22.32</u>
Soil Type	Clay/Sand
Barrels of Oil Assuming 100% Saturation	<u>3.35</u>
Saturation	Fluid present with shovel/backhoe
Estimated Barrels of Oil Released	3.35
Free Standing Fluid Only	
Area (square feet)	Depth(inches)
<u>3005.213</u>	<u>0.000</u>
Standing fluid	<u>0.000</u>
Total fluids spilled	3.348



Incident Number: nAPP2311745706

Release Assessment and Closure

Arena Roja Federal Unit 1 (Unit CTB 1)

Section 27, Township 26 South, Range 35 East

API: 30-025-37257

County: Lea

Vertex File Number: 23E-02841

Prepared for:

Devon Energy Production Company, LP

Prepared by:

Vertex Resource Services Inc.

Date:

March 2024

Devon Energy Production Company, LP
Arena Roja Federal Unit 1 (Unit CTB 1)

Release Assessment and Closure
Arena Roja Federal Unit 1 (Unit CTB 1)
Section 27, Township 26 South, Range 35 East
API: 30-025-37257
County: Lea

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

New Mexico Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

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


Stephanie McCarty, B.Sc.
ENVIRONMENTAL TECHNOLOGIST, REPORTING

March 12, 2024

Date


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

April 5, 2024

Date

Devon Energy Production Company, LP
Arena Roja Federal Unit 1 (Unit CTB 1)

Table of Contents

1.0	Introduction	1
2.0	Incident Description	1
3.0	Site Characteristics	1
4.0	Closure Criteria Determination	2
5.0	Remedial Actions Taken.....	4
6.0	Closure Request.....	5
7.0	References	6
8.0	Limitations	7

Devon Energy Production Company, LP
Arena Roja Federal Unit 1 (Unit CTB 1)

In-text Tables

- Table 1. Closure Criteria Determination
Table 2. Closure Criteria for Soils Impacted by a Release

List of Figures

- Figure 1. Characterization Sampling Site Schematic
Figure 2. Confirmatory Sampling Site Schematic

List of Tables

- Table 3. Initial Characterization 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

List of Appendices

- Appendix A. NMOCD C-141 Report
Appendix B. Closure Criteria Research Documentation
Appendix C. Daily Field and Sampling Reports
Appendix D. Notifications
Appendix E. Laboratory Data Reports and Chain of Custody Forms

1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a produced water release that occurred on April 26, 2023, on-site at Arena Roja Federal Unit 1 API: 30-025-37257 in relation to Arena Roja Unit CTB 1 (hereafter referred to as the “site”). Devon submitted a notice of release on April 27, 2023, and an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 1 on May 10, 2023. Incident ID number nAPP2311745706, 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 April 26, 2023, when a waterline developed a leak releasing produced water within the facility, onto the pad. The incident was reported on May 10, 2023, and involved the release of 10 barrels (bbl.) of produced water. During the initial clean-up, 5 bbl. of produced water were recovered, and 5 bbl. remained on location. Additional details relevant to the release are presented in the C-141 Report (Appendix A).

Please note a discrepancy on the notice of release which indicates the incident material is “condensate”. The initial C-141 indicates the incident material is “produced water,” Additionally, the “location of release source” coordinates on the Initial C-141 are different than the coordinates listed in the general incident information on the NMOCD permitting search website. Based on field observations, sampling and permit information per emnrd.nm.gov, Vertex determined the correct release area.

3.0 Site Characteristics

The site is located approximately 11 miles southwest of Jal, New Mexico at, 32.012390 ° N, 103.352982 ° W (Google Inc., 2023). The legal location for the site is Section 27, Township 26 South and Range 35 East in Lea County, New Mexico. The release area is located on federal property. An aerial photograph and characterization sampling site schematic is presented on Figure 1.

The location is typical of oil and gas exploration and production sites in the Permian Basin and is currently used for oil and gas production. The following sections specifically describe the release area at the site or in proximity to the constructed pad (Figure 1).

The *Geological Map of New Mexico* (New Mexico Bureau of Geology and Mineral Resources, 2023) indicates the surface geology at the site primarily comprises Qep – Eolian and piedmont deposits (Holocene to middle Pleistocene). The soil at the site is characterized as Pyote and Maljamar fine sands (United States Department of Agriculture, Natural

Resources Conservation Service, 2023). Additional soil characteristics include well drained soil with negligible runoff and low available moisture levels in the soil profile. The karst geology potential for the site is low (United States Department of the Interior, Bureau of Land Management, 2018).

The surrounding landscape is associated with uplands landforms, plains, dunes, fan piedmont and inter dune areas, where low stabilized dunes may occasionally occur, at elevations of 2,800 to 5,000 feet above sea level. The climate is semi-arid with average annual precipitation ranging between 8 and 13 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be grasses with shrubs. Black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*) with shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*) dominated the historical plant community in this area. Overgrazing and extended drought can reduce the black grama grass cover, transitioning into a grass/shrub state with grasses and honey mesquite (*Prosopis glandulosa*), grasses with broom snakeweed (*Gutierrezia sarothrae*), or grasses with sand sage or shrub dominated community (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.

4.0 Closure Criteria Determination

The nearest well within 0.5 mile to the site, POD-1 04793, was drilled on February 7, 2024, as a local depth to ground water reference. It is located approximately 0.47 miles northwest of the site.

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. 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 a Solinst Interface Meter probe model 122 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 according to the WD-08 permit, Well Plugging Plan of Operations, filed with NMOSE. Documentation related to the exploratory borehole is included in Appendix B.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is riverine. It is identified in the National Wetlands Inventory approximately 1.1 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. The closure criteria research documentation is included in Appendix B.

Devon Energy Production Company, LP
Arena Roja Federal Unit 1 (Unit CTB 1)

Release Assessment and Closure
March 2024

Table 1. Closure Criteria Determination			
Site Name: Arena Roja Fed Unit 1			
Spill Coordinates: 32.012405, -103.353165		X: 655541	Y: 3542996
Site Specific Conditions		Value	Unit
1	Depth to Groundwater (nearest reference)	>55	feet
	Distance between release and nearest DTGW reference	2,480	feet
		0.47	miles
	Date of nearest DTGW reference measurement	February 7, 2024	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	5,808	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11,616	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	17,424	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or	6,791	feet
	ii) Within 1000 feet of any fresh water well or spring	-	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	8,206	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	200,640	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	90,618	feet
10	Within a 100-year Floodplain	500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	57,200	feet
11	Soil Type	Pyote and Maljamar Fine Sands	
12	Ecological Classification	Loamy Sand	
13	Geology	Qep: Eolian and piedmont deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'

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

Table 2. Closure Criteria for Soils Impacted by a Release		
Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
51 feet - 100 feet	Chloride	10,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – total dissolved solids

TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics

BTEX – benzene, toluene, ethylbenzene and xylenes

5.0 Remedial Actions Taken

An initial site inspection of the release area was completed on May 15, 2023, and characterization was completed on September 25, 2023, which identified the area of the release specified in the initial C-141 Report. The impacted area and impacted area per closure criteria was determined to be approximately 307 feet long and 220 feet wide; the total affected area was 40,218 square feet.

Remediation efforts began on September 25, 2023, and were finalized on October 6, 2023. Vertex personnel supervised the excavation of impacted soils. Field screening was conducted and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dextsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and electroconductivity meter (chlorides). Field screening results were used to identify areas requiring further remediation. During excavation, a reassessment of BH23-12 to determine the vertical extent of the release below delineation criteria and complete characterization was conducted; the sample from BH23-12 at a depth of 7 feet was below applied criteria. Characterization laboratory results are summarized in Table 3. Confirmation laboratory results are summarized in Table 4, and an excavation and confirmation sampling site schematic is presented on Figure 2. Sampling and Daily Field Reports documenting various phases of the remediation are included in Appendix C.

Notification that confirmatory samples were being collected was provided to the NMOCD on October 3, 2023 (Appendix D). Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments. A total of 11 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). Laboratory results are presented in Table 4, and the laboratory data reports are included in Appendix E. All confirmatory samples collected and analyzed were below closure criteria for the site.

Devon Energy Production Company, LP
Arena Roja Federal Unit 1 (Unit CTB 1)

Release Assessment and Closure
March 2024

6.0 Closure Request

The release area was fully delineated, remediated and backfilled with local soils. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted by a release location where depth to ground water is 51 to 100 feet bgs. Based on these findings, Devon requests that this release be closed.

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

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 Department of Surface Water Quality Bureau. (2023). *Assessed and Impaired Waters of New Mexico*. Retrieved from <https://gis.web.env.nm.gov/oem/?map=swqb>
- New Mexico Energy, Minerals and Natural Resources Department. (2023). *OCD Permitting - Spill Search*. Retrieved from <https://wwwapps.emnrd.nm.gov/oed/oedpermitting/Data/Spills/Spills.aspx>
- New Mexico Mining and Minerals Division. (2023). *Coal Mine Resources in New Mexico*. Retrieved from <https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=5f80f3b0faa545e58fe747cc7b037a93>
- New Mexico Office of the State Engineer. (2023a). *Point of Diversion Location Report - New Mexico Water Rights Reporting System*. Retrieved from <http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html>
- New Mexico Office of the State Engineer. (2023b). *Water Column/Average Depth to Water Report - New Mexico Water Rights Reporting System*. Retrieved from <http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html>
- New Mexico Office of the State Engineer. (2023c). *Well Log/Meter Information Report - New Mexico Water Rights Reporting System*. Retrieved from <http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.html>
- New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.
- United States Department of Agriculture, Natural Resources Conservation Service. (2023). *Web Soil Survey*. Retrieved from <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
- United States Department of Homeland Security, Federal Emergency Management Agency. (2023). *FEMA Flood Map Service: Search by Address*. Retrieved from <https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor>
- United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karst*. Retrieved from https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html
- United States Fish and Wildlife Service. (2023). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>
- United States Geological Survey. (2023). *National Water Information System: Web Interface*. Retrieved from <https://waterdata.usgs.gov/nwis>

Devon Energy Production Company, LP
Arena Roja Federal Unit 1 (Unit CTB 1)

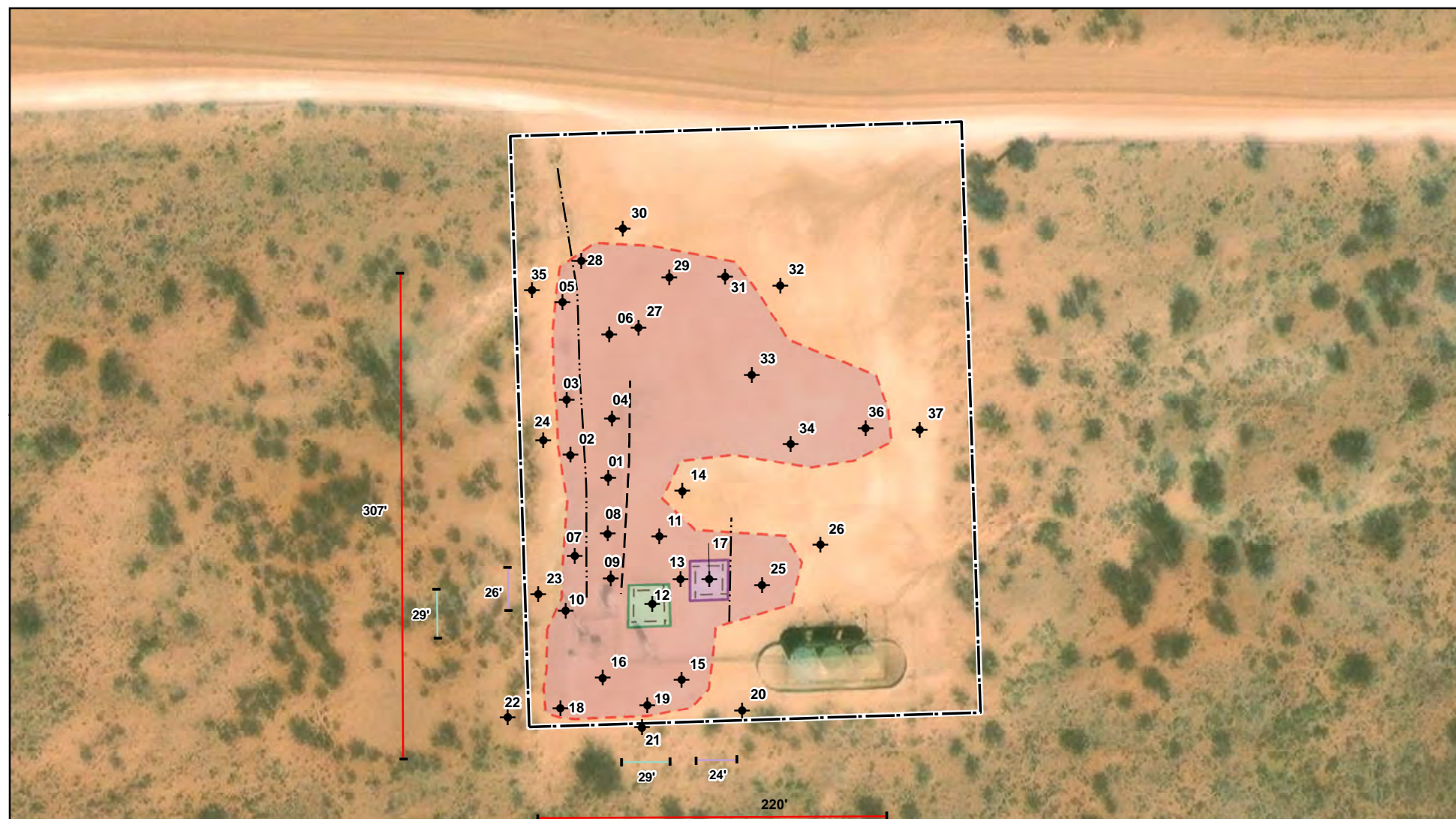
Release Assessment and Closure
March 2024

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, 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



- ◆ Borehole (Prefixed by "BH23-") - - - Pipeline (Underground) [Red Dashed Box] Approximate Release Area (~40,218 sq.ft.) [Purple Dashed Box] Proposed Excavation to 3' bgs (~612 sq.ft.)
- - - Pipeline (Aboveground) [Green Dashed Box] Approximate Lease Boundary [Green Dashed Box] Proposed North Excavation to 1' bgs (~7,000 sq.ft.)



0 40 80 ft
Map Center:
Lat/Long: 32.012390, -103.352982

NAD 1983 UTM Zone 13N
Date: Sep 06/23



Characterization Sampling Site Schematic Arena Roja Federal Unit 1 (Unit CTB 1)

FIGURE:

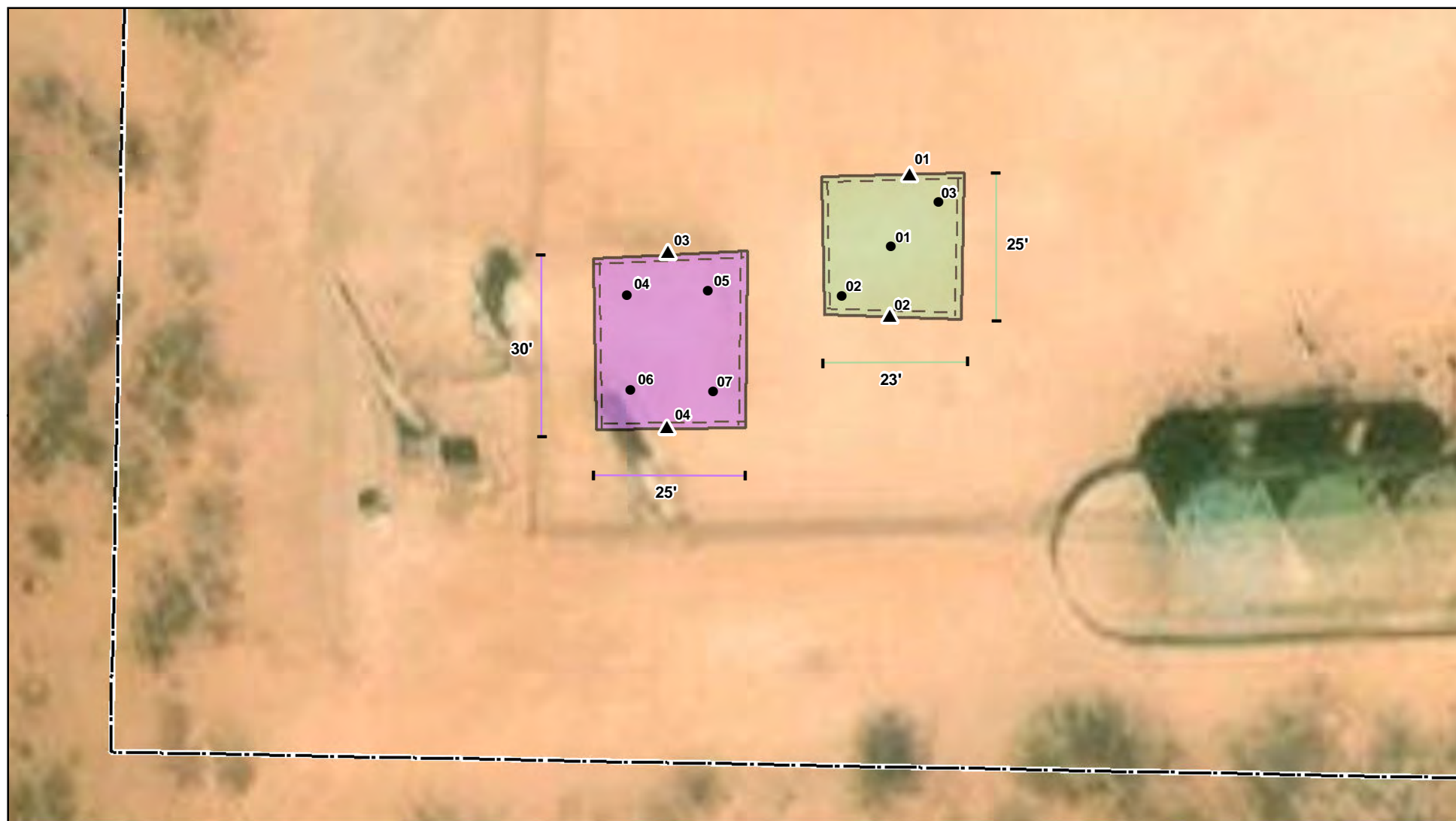
1



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, 2023, georeferenced by Vertex Professional Services Ltd. (Vertex), 2023. Site features from GPS by Vertex, 2023.

VERSATILITY. EXPERTISE.



● Base Sample (Prefixed by "BES23-")
 ▲ Wall Sample (Prefixed by "WES23-")
 [Dashed Line] Approximate Lease Boundary
 [Purple Box] 1' Excavation (~790 sq. ft.)
 [Green Box] 3' Excavation (~597 sq. ft.)



0 5 10 20 Feet
 Map Center:
 Lat/Long: 32.012023, -103.353133

NAD 1983 UTM Zone 13N
 Date: Oct 16/23



Confirmatory Sampling Site Schematic Arena Roja Federal Unit 1 (Unit CTB 1)

FIGURE:

2



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

Note: Georeferenced image from Esri, 2022. Approximate lease boundary from imagery by Vertex Professional Services Ltd. (Vertex), 2023. Site features from GPS by Vertex 2023.

VERSATILITY. EXPERTISE.

TABLES

Client Name: Devon Energy Production Company, LP

Site Name: Arena Roja Federal Unit 1 (Unit CTB 1)

NMOCD Tracking #: nAPP2311745706

Project #: 23E-02841

Lab Reports: 2308080, 2308474, 2308551, 2308C22, 2308968, 2308A32 and 2309E39

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

Sample Description			Field Screening			Laboratory Results							
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Petroleum Hydrocarbons							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)
BH23-01	0	July 31, 2023	0	79	3,963	ND	ND	ND	ND	ND	ND	ND	5,200
	2	July 31, 2023	0	-	570	ND	ND	ND	ND	ND	ND	ND	640
BH23-02	0	July 31, 2023	1	124	1,301	ND	ND	ND	ND	ND	ND	ND	1,600
	2	July 31, 2023	1	-	0	ND	ND	ND	ND	ND	ND	ND	190
BH23-03	0	July 31, 2023	1	110	3,572	ND	ND	ND	ND	ND	ND	ND	5,000
	2	July 31, 2023	1	-	252	ND	ND	ND	ND	ND	ND	ND	470
BH23-04	0	July 31, 2023	0	37	0	ND	ND	ND	14	ND	14	14	83
	2	July 31, 2023	-	-	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-05	0	July 31, 2023	1	118	2,883	ND	ND	ND	ND	ND	ND	ND	4,000
	2	July 31, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	120
BH23-06	0	July 31, 2023	0	118	747	ND	ND	ND	ND	ND	ND	ND	670
	2	July 31, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	120
BH23-07	0	August 7, 2023	0	0	1,200	ND	ND	ND	11	ND	11	11	1,700
	1	August 7, 2023	0	41	0	ND	ND	ND	ND	ND	ND	ND	180
BH23-08	0	August 7, 2023	0	99	5,276	ND	ND	ND	ND	ND	ND	ND	7,900
	2	August 7, 2023	0	93	702	ND	ND	ND	ND	ND	ND	ND	910
	4	August 7, 2023	0	130	177	ND	ND	ND	ND	ND	ND	ND	470
BH23-09	0	August 7, 2023	0	92	8,069	ND	ND	ND	35	ND	35	35	9,800
	2	August 7, 2023	0	44	95	ND	ND	ND	ND	ND	ND	ND	280
	4	August 7, 2023	0	51	450	ND	ND	ND	ND	ND	ND	ND	740
BH23-10	0	August 7, 2023	0	34	767	ND	ND	ND	ND	ND	ND	ND	1,000
	2	August 7, 2023	0	45	0	ND	ND	ND	ND	ND	ND	ND	160
BH23-11	0	August 7, 2023	0	-	5,702	ND	ND	ND	ND	ND	ND	ND	7,300
	2	August 7, 2023	0	-	36	ND	ND	ND	ND	ND	ND	ND	410
BH23-12	0	August 7, 2023	0	-	10,891	ND	ND	ND	ND	ND	ND	ND	14,000
	2	August 7, 2023	0	-	959	ND	ND	ND	ND	ND	ND	ND	1,200
	4	August 7, 2023	0	177	679	ND	ND	ND	ND	ND	ND	ND	2,200
	6	August 8, 2023	0	31	661	ND	ND	ND	ND	ND	ND	ND	950
	7	September 25, 2023	-	20	277	ND	ND	ND	ND	ND	ND	ND	450
BH23-13	0	August 8, 2023	0	-	2,361	ND	ND	ND	ND	ND	ND	ND	2,400
	2	August 8, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-14	0	August 8, 2023	0	62	243	ND	ND	ND	ND	ND	ND	ND	230
	2	August 8, 2023	0	20	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-15	0	August 8, 2023	0	-	4,367	ND	ND	ND	ND	ND	ND	ND	5,200
	2	August 8, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-16	0	August 8, 2023	0	-	8,524	ND	ND	ND	ND	ND	ND	ND	10,000
	2	August 8, 2023	0	-	783	ND	ND	ND	ND	ND	ND	ND	990
	4	August 8, 2023	0	54	385	ND	ND	ND	ND	ND	ND	ND	580
BH23-17	0	August 8, 2023	0	-	5,266	ND	ND	ND	460	330	460	790	8,000
	2	August 8, 2023	0	>1500	2	ND	ND	ND	2,500	640	2,500	3,140	230
	4	August 8, 2023	0	82	34	ND	ND	ND	10	ND	10	10	290
	6	August 8, 2023	0	73	0	-	-	-	-	-	-	-	-
BH23-18	0	August 8, 2023	0	-	4,130	ND	ND	ND	ND	ND	ND	ND	5,500
	2	August 8, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	190
BH23-19	0	August 8, 2023	0	-	8,215	ND	ND	ND	ND	ND	ND	ND	8,500
	2	August 8, 2023	2	-	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-20	0	August 8, 2023	0	45	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 8, 2023	0	23	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-21	0	August 14, 2023	-	0	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 14, 2023	-	4	0	ND	ND	ND	ND	ND	ND	ND	70
BH23-22	0	August 14, 2023	-	0	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 14, 2023	-	5	27	ND	ND	ND	ND	ND	ND	ND	190
BH23-23	0	August 14, 2023	-	24	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 14, 2023	-	2	474	ND	ND	ND	ND	ND	ND	ND	500

Client Name: Devon Energy Production Company, LP

Site Name: Arena Roja Federal Unit 1 (Unit CTB 1)

NMOCD Tracking #: nAPP2311745706

Project #: 23E-02841

Lab Reports: 2308080, 2308474, 2308551, 2308C22, 2308968, 2308A32 and 2309E39

Table 3. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater 51 - 100 feet bgs													
Sample Description			Field Screening			Laboratory Results							
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Petroleum Hydrocarbons							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)
BH23-24	0	August 14, 2023	-	0	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 14, 2023	-	0	378	ND	ND	ND	ND	ND	ND	ND	460
BH23-25	0	August 14, 2023	-	-	7,057	ND	ND	ND	ND	ND	ND	ND	5,600
	2	August 14, 2023	-	-	0	ND	ND	ND	ND	ND	ND	ND	63
BH23-26	0	August 14, 2023	-	0	28	ND	ND	ND	ND	ND	ND	ND	120
	2	August 14, 2023	-	0	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-27	0	August 16, 2023	2	-	5,408	ND	ND	ND	ND	ND	ND	ND	3,900
	2	August 16, 2023	1	-	33	ND	ND	ND	ND	ND	ND	ND	140
BH23-28	0	August 16, 2023	4	-	1,332	ND	ND	ND	ND	ND	ND	ND	1,100
	2	August 16, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	110
BH23-29	0	August 16, 2023	0	-	1,180	ND	ND	ND	ND	ND	ND	ND	580
	2	August 16, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-30	0	August 16, 2023	0	0	0	ND	ND	ND	ND	ND	ND	ND	96
	2	August 16, 2023	1	44	0	ND	ND	ND	ND	ND	ND	ND	61
BH23-31	0	August 16, 2023	0	44	834	ND	ND	ND	ND	ND	ND	ND	290
	2	August 16, 2023	0	20	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-32	0	August 17, 2023	0	29	10	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 17, 2023	0	24	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-33	0	August 17, 2023	2	-	2,138	ND	ND	ND	ND	ND	ND	ND	1,600
	2	August 17, 2023	0	-	0	ND	ND	ND	ND	ND	ND	ND	63
BH23-34	0	August 17, 2023	0	-	5,256	ND	ND	ND	ND	ND	ND	ND	4,500
	2	August 17, 2023	0	-	38	ND	ND	ND	ND	ND	ND	ND	190
BH23-35	0	August 17, 2023	2	0	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 17, 2023	0	24	27	ND	ND	ND	ND	ND	ND	ND	210
BH23-36	0	August 17, 2023	0	-	7,370	ND	ND	ND	ND	ND	ND	ND	6,200
	2	August 17, 2023	0	-	502	ND	ND	ND	ND	ND	ND	ND	400
BH23-37	0	August 17, 2023	1	0	0	ND	ND	ND	ND	ND	ND	ND	ND
	2	August 17, 2023	0	0	0	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 Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

Client Name: Devon Energy Production Company, LP
 Site Name: Arena Roja Federal Unit 1 (Unit CTB 1)
 NMOCD Tracking #: nAPP2311745706
 Project #: 23E-02841
 Lab Reports: 2309E39 and 2310427

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)	
BES23-01	3	September 25, 2023	-	5	0	ND	ND	ND	ND	ND	ND	ND	100
BES23-02	1	September 25, 2023	-	15	197	ND	ND	ND	140	ND	140	140	650
BES23-03	1	September 25, 2023	-	9	360	ND	ND	ND	ND	ND	ND	ND	470
WES23-01	0-3	September 25, 2023	-	0	0	ND	ND	ND	ND	ND	ND	ND	510
WES23-02	0-3	September 25, 2023	-	605	288	ND	ND	ND	820	500	820	1320	140
WES23-03	0-1	September 25, 2023	-	0	0	ND	ND	ND	ND	ND	ND	ND	190
WES23-04	0-1	September 25, 2023	-	0	0	ND	ND	ND	15	ND	15	15	910
BES23-01	3	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	91
BES23-02	3	October 6, 2023	-	-	-	ND	ND	ND	19	ND	19	19	180
BES23-03	3	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	150
BES23-04	1	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	86
BES23-05	1	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND
BES23-06	1	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	93
BES23-07	1	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND
WES23-01	0-3	October 6, 2023	-	-	-	ND	ND	ND	16	ND	16	16	110
WES23-02	0-3	October 6, 2023	-	-	-	ND	ND	ND	18	ND	18	18	190
WES23-03	0-1	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND
WES23-04	0-1	October 6, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	210

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)

and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

APPENDIX A - NMOCD C-141 Report

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

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

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

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 type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<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

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input 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: _____	Title: _____
Signature: <u>Kendra Ruiz</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>05/10/2023</u>

Incident ID	nAPP2311745706
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>55</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	nAPP2311745706
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Env. Professional

Signature: _____ Date: _____

email: dale.woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2311745706
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Dale Woodall Title: Env. Professional

Signature: _____ Date: _____

email: dale.woodall@dvn.com Telephone: 575-748-1838

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Incident ID	nAPP2311745706
District RP	
Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: Dale Woodall Title: Env. Professional

Signature: _____ Date: _____

email: dale.woodall@dvn.com Telephone: 575-748-1838

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.

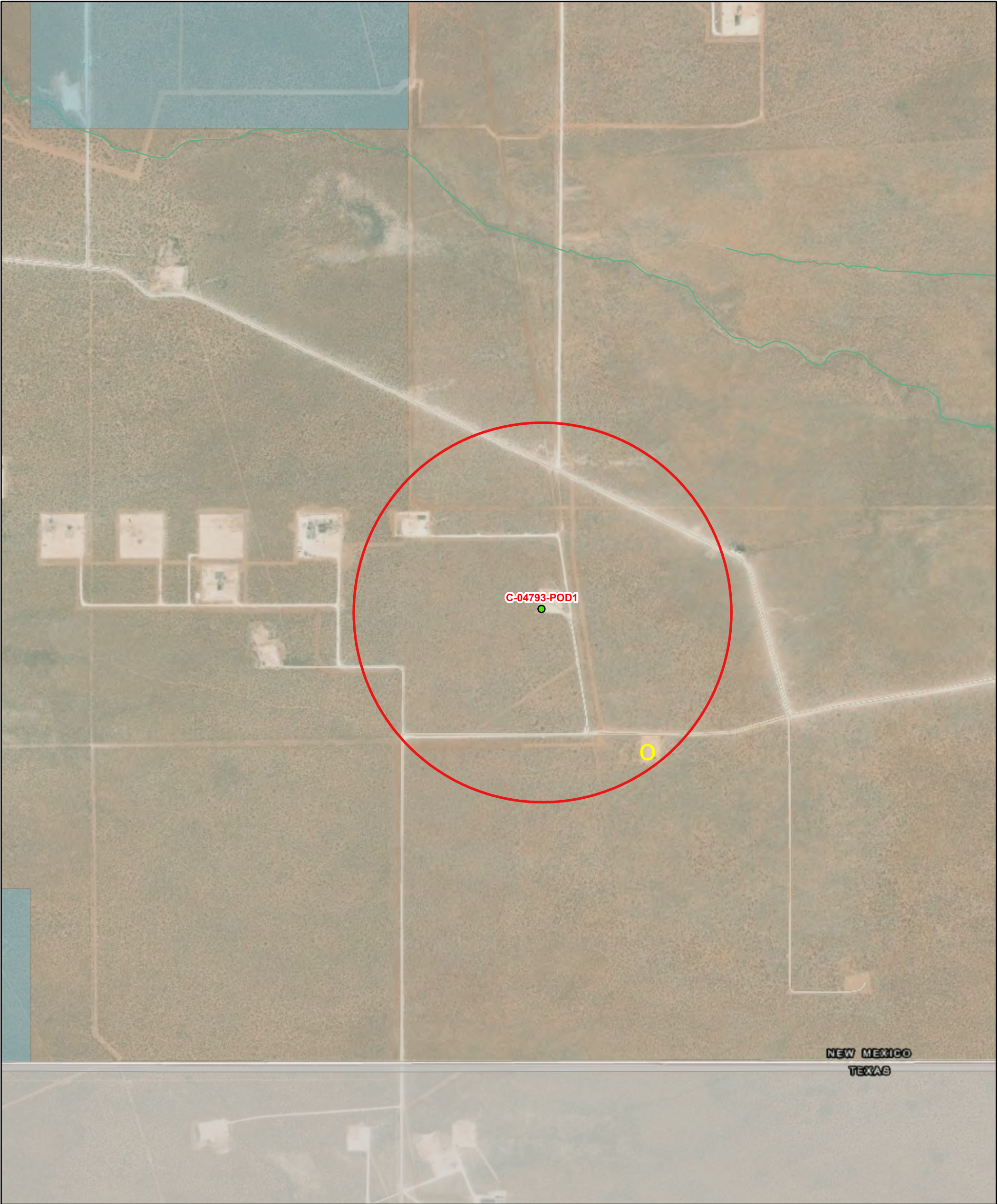
Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

APPENDIX B – Closure Criteria Research Documentation

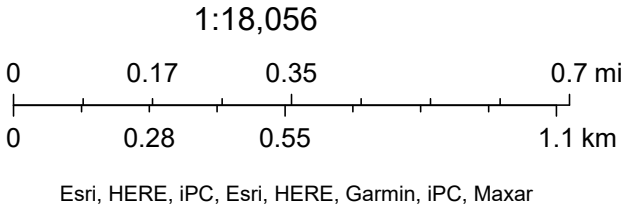
Closure Criteria Determination			
Site Name: Arena Roja Fed Unit 1			
Spill Coordinates: 32.012405, -103.353165		X: 655541	Y: 3542996
Site Specific Conditions		Value	Unit
1	Depth to Groundwater (nearest reference)	>55	feet
	Distance between release and nearest DTGW reference	2,480	feet
		0.47	miles
	Date of nearest DTGW reference measurement	February 7, 2024	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	5,808	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11,616	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	17,424	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or	6,791	feet
	ii) Within 1000 feet of any fresh water well or spring	-	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	8,206	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	200,640	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	90,618	feet
10	Within a 100-year Floodplain	500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	57,200	feet
11	Soil Type	Pyote and Maljamar Fine Sands	
12	Ecological Classification	Loamy Sand	
13	Geology	Qep: Eolian and piedmont deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'

OSE POD Location Arena Roja Federal Unit #005 Pad C-04793-POD1 0.5 Mile Radius



3/12/2024, 9:08:48 AM

- Override 1
- Pending
- OSE District Boundary
- Closure Area
- New Mexico State Trust Lands
- Both Estates
- NHD Flowlines
- Stream River





WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) C04793POD1			WELL TAG ID NO. C04793			OSE FILE NO(S). C4793		
	WELL OWNER NAME(S) Devon Energy Resources						PHONE (OPTIONAL)		
	WELL OWNER MAILING ADDRESS 205 E Bender Road #150						CITY Hobbs	STATE NM	ZIP 88240
	WELL LOCATION (FROM GPS)	DEGREES 32		MINUTES 1	SECONDS 3.7164	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND		
		LONGITUDE -103		21	28.3284	W	* DATUM REQUIRED: WGS 84		
	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 2-7-24		DRILLING ENDED 2-7-24		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 2-10-24
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES – SPECIFY:								
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER – SPECIFY:							CHECK HERE IF PITLESS ADAPTER IS INSTALLED <input type="checkbox"/>	
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)	
	FROM	TO							
		0	45'	6"	2"PVC SCH40	Thread	2"	SCH40	N/A
		45'	55"	6"	2"PVC SCH40	Thread	2"	SCH40	.02
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL <u>*(if using Centralizers for Artesian wells- indicate the spacing below)</u>	AMOUNT (cubic feet)	METHOD OF PLACEMENT			
	FROM	TO							
				None pulled and plugged					

FOR OSE INTERNAL USE

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

FILE NO.		POD NO.	TRN NO.
LOCATION		WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER- BEARING ZONES (gpm)
	FROM	TO				
	0	20'	20'	Brown sand with coarse rock	Y ✓ N	
	20'	40'	20'	Red clay with caliche	Y ✓ N	
	40'	55'	15'	Red clay with white medium rock	Y ✓ N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
					Y N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:					TOTAL ESTIMATED WELL YIELD (gpm): 0	
<input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input checked="" type="checkbox"/> OTHER – SPECIFY: Dry						

5. TEST; RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.
	MISCELLANEOUS INFORMATION:	
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:	

6. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:	
	 Jason Maley	 DATE
	SIGNATURE OF DRILLER	PRINT SIGNEE NAME



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-4793-POD1

Well owner: Devon Energy Resources

Phone No.: 405-318-4697

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: 2-10-24 Date well plugging concluded: 2-10-24
- 5) GPS Well Location: Latitude: 32 deg, 1 min, 3.7164 sec
Longitude: -103 deg, 21 min, 28.3284 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: 12-6-23
- 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):

- For each interval plugged, describe within the following columns:**

[illegible]

MULTIPLY		BY	AND OBTAIN
cubic feet	x	7.4805	= gallons
cubic yards	x	201.97	= gallons

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


2/21/24
Date



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	03795 POD1	4	4	3	24	26S	35E	658419	3544221 

Driller License: 1607 **Driller Company:** DURAN DRILLING

Driller Name: DURAN, LUIS (TONY)

Drill Start Date: 02/02/2015

Drill Finish Date: 02/06/2015

Plug Date:

Log File Date: 02/19/2015

PCW Rcv Date:

Source: Shallow

Pump Type:

Pipe Discharge Size:

Estimated Yield: 180 GPM

Casing Size: 7.00

Depth Well: 496 feet

Depth Water: 250 feet

Water Bearing Stratifications:

Top Bottom Description

320 324 Sandstone/Gravel/Conglomerate

460 492 Sandstone/Gravel/Conglomerate

Casing Perforations:

Top Bottom

195 495

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.

5/17/23 2:18 PM

Page 1 of 1

POD SUMMARY - C 03795 POD1



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 03795 POD1	C	LE		4	4	3	24	26S	35E	658419	3544221	3128	496	250	246
J 00002 X3	J	LE			3	1	19	26S	36E	659536	3545067*	4499	710	216	494
C 03874 POD1	CUB	LE		2	2	3	30	26S	36E	660141	3543200	4604	575	250	325
J 00041 POD1	J	LE		1	1	1	19	26N	36E	659404	3545621	4670		270	
J 00003 POD2	J	LE		1	1	2	30	26S	36E	660265	3543972	4824		99	

Average Depth to Water: **217 feet**

Minimum Depth: **99 feet**

Maximum Depth: **270 feet**

Record Count: 5

UTM NAD83 Radius Search (in meters):

Easting (X): 655541

Northing (Y): 3542996

Radius: 5000

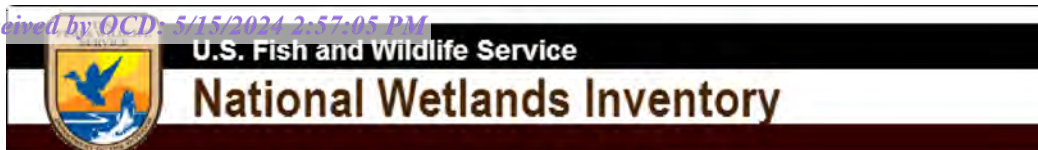
*UTM location was derived from PLSS - see Help

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.

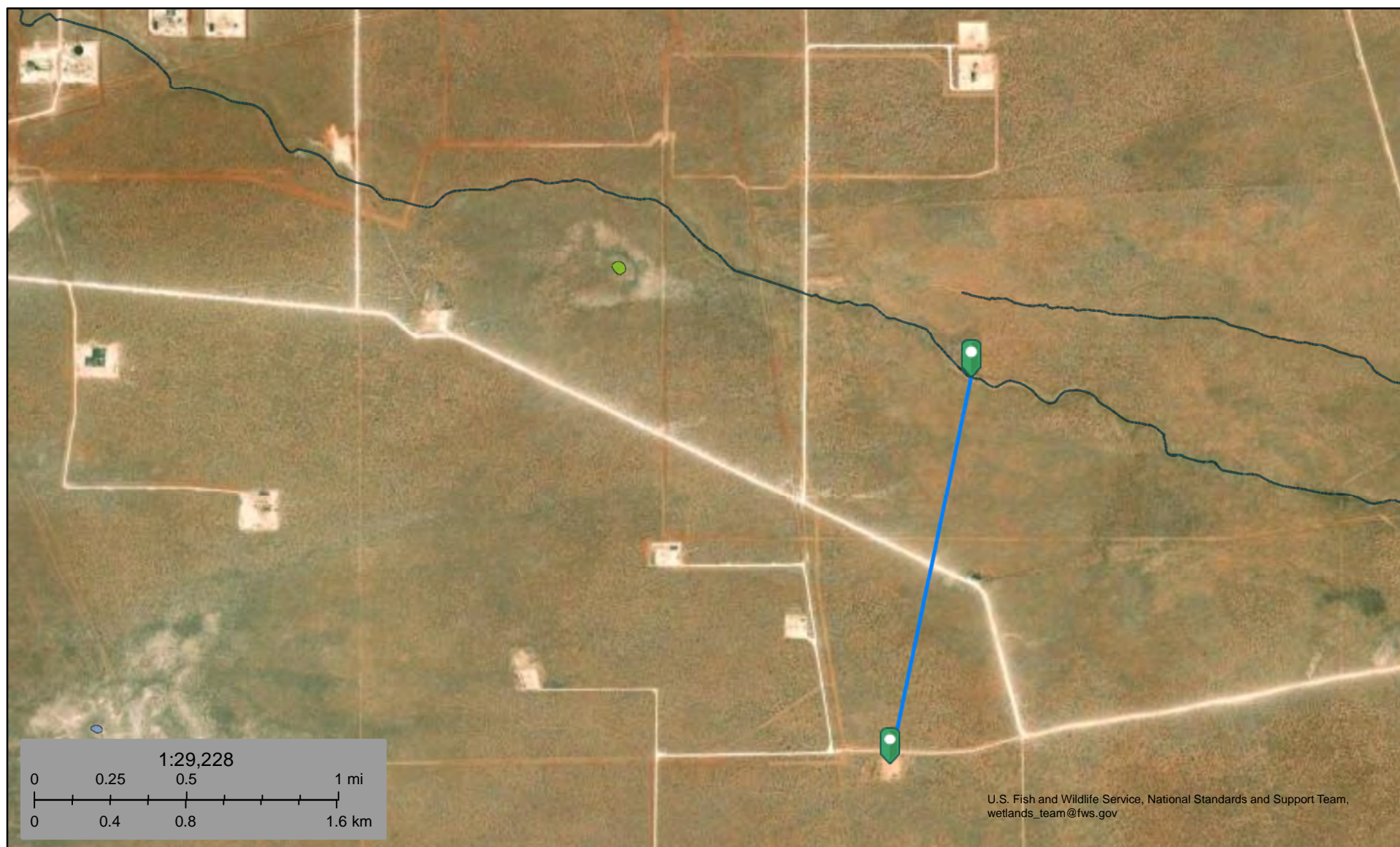
5/17/23 2:17 PM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



Arena Roja Fed Unit 1 1.1 mi Riverine



September 5, 2023

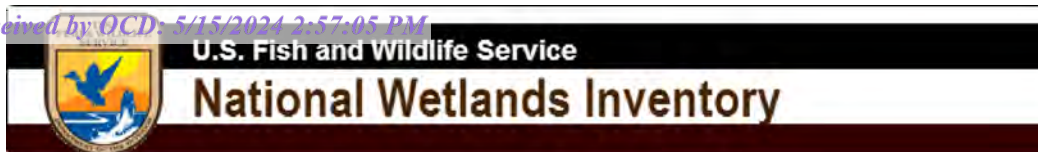
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

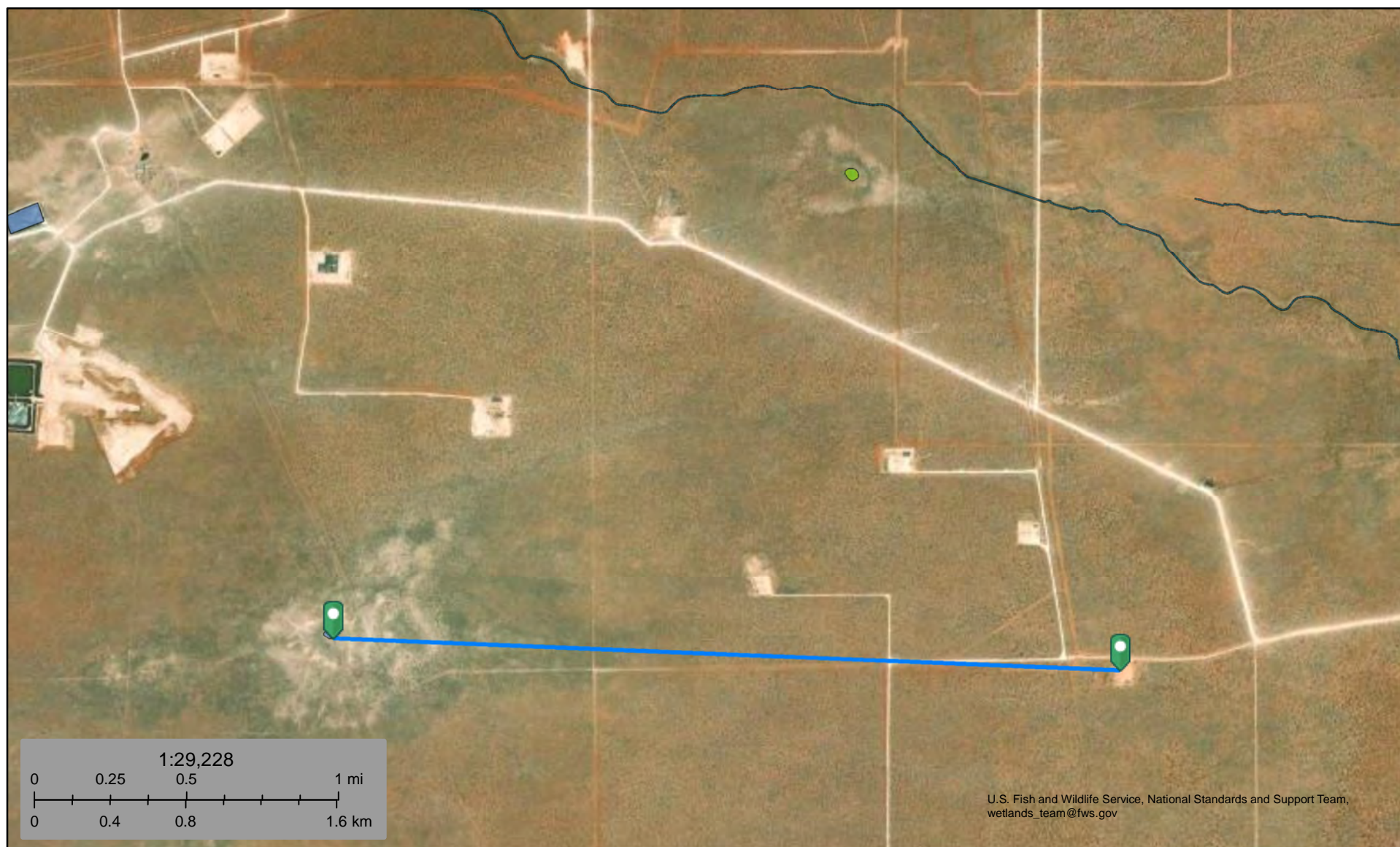
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

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



Arena Roja Fed Unit 2 CTB 2.2 mi Pond



September 5, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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



- Lake
- Other
- Riverine

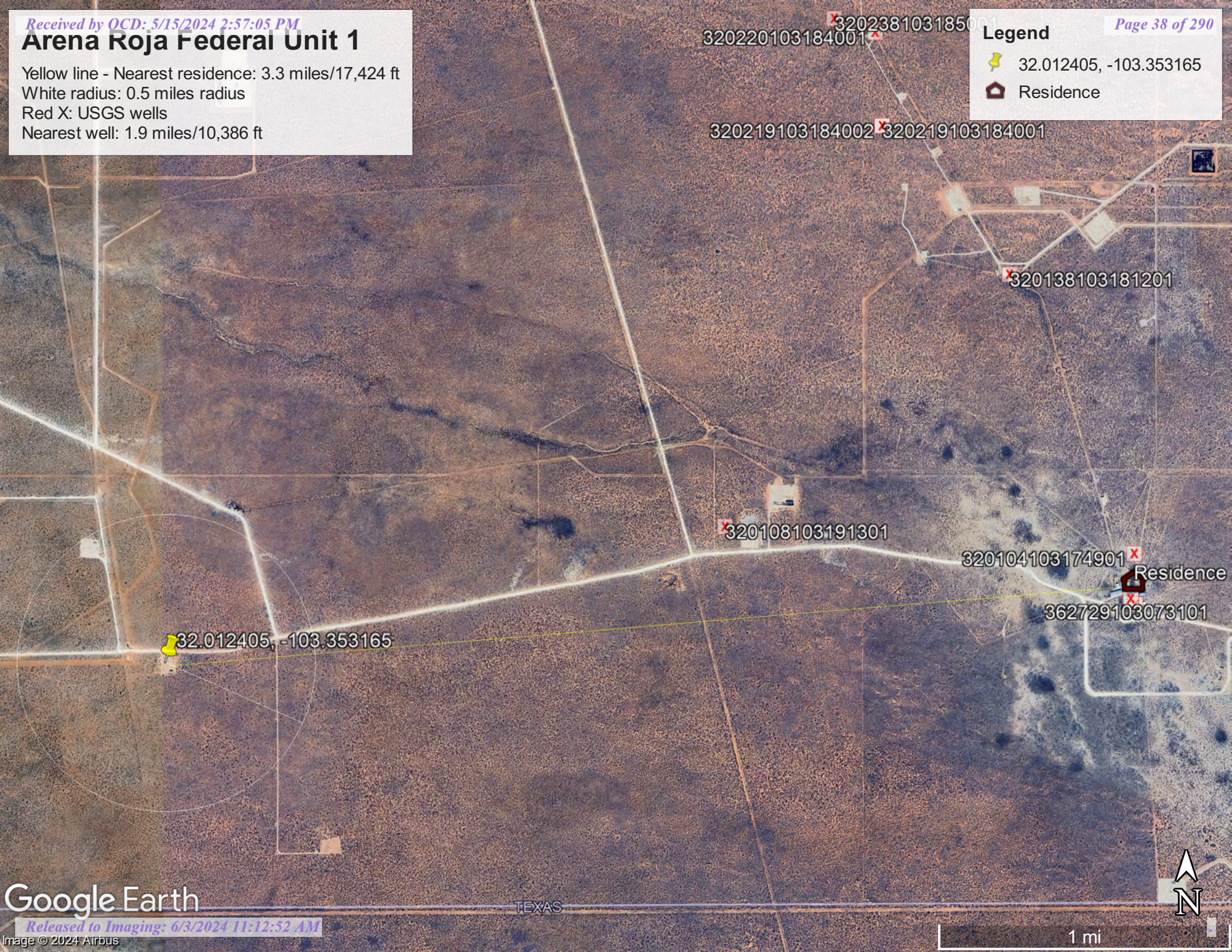
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Arena Roja Federal Unit 1

Yellow line - Nearest residence: 3.3 miles/17,424 ft
White radius: 0.5 miles radius
Red X: USGS wells
Nearest well: 1.9 miles/10,386 ft

Legend

-  32.012405, -103.353165
-  Residence





New Mexico Office of the State Engineer




Active & Inactive Points of Diversion

(with Well Drill Dates & Depths)

(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) (in feet)

WR File Nbr	Sub basin	Use	Diversion	Cnty	POD Number	Well Tag	Code	Grant	Source	q q q	6416 4 Sec Tws Rng	X	Y	Distance	Start Date	Finish Date	Depth Well	Depth Water
C 04021	C	DOM	1	LE	C 04021 POD1					2 4 4 26 26S 35E	657602	3542791	2070					
C 02272	C	STK	3	LE	C 02272					4 4 3 24 26S 35E	658439	3544144*	3117					
C 03795	C	STK	3	LE	C 03795 POD1				Shallow	4 4 3 24 26S 35E	658419	3544221	3128		02/02/2015	02/06/2015	496	250
C 03845	C	PRO	0	LE	C 03795 POD1				Shallow	4 4 3 24 26S 35E	658419	3544221	3128		02/02/2015	02/06/2015	496	250
C 03846	C	PRO	0	LE	C 03795 POD1				Shallow	4 4 3 24 26S 35E	658419	3544221	3128		02/02/2015	02/06/2015	496	250
C 03847	C	PRO	0	LE	C 03795 POD1				Shallow	4 4 3 24 26S 35E	658419	3544221	3128		02/02/2015	02/06/2015	496	250
J 00002	J	MUN	986	LE	J 00002 X					3 4 13 26S 35E	658717	3545861*	4277					
				LE	J 00002 X3				Shallow	3 1 19 26S 36E	659536	3545067*	4499		09/04/1980	09/08/1980	710	216
C 04098	C	STK	3	LE	C 04098 POD1	205DE				4 4 3 30 26S 36E	660059	3542555	4539					
C 03874	CUB	EXP	0	LE	C 03874 POD1				Shallow	2 2 3 30 26S 36E	660141	3543200	4604		07/06/2015	07/09/2015	575	250
C 03993	C	PRO	0	LE	C 03874 POD1				Shallow	2 2 3 30 26S 36E	660141	3543200	4604		07/06/2015	07/09/2015	575	250
C 03995	C	PRO	0	LE	C 03874 POD1				Shallow	2 2 3 30 26S 36E	660141	3543200	4604		07/06/2015	07/09/2015	575	250
C 03998	C	PRO	0	LE	C 03874 POD1				Shallow	2 2 3 30 26S 36E	660141	3543200	4604		07/06/2015	07/09/2015	575	250
J 00041	J	EXP	0	LE	J 00041 POD1	NA				1 1 1 19 26N 36E	659404	3545621	4670		04/30/2019	07/31/2019		270
J 00002	J	MUN	986	LE	J 00003 POD2				Shallow	1 1 2 30 26S 36E	660265	3543972	4824					99
J 00003	J	COM	30	LE	J 00003 POD2				Shallow	1 1 2 30 26S 36E	660265	3543972	4824					99
J 00004	J	COM	5	LE	J 00003 POD2				Shallow	1 1 2 30 26S 36E	660265	3543972	4824					99
J 00022	J	DOL	0	LE	J 00003 POD2				Shallow	1 1 2 30 26S 36E	660265	3543972	4824					99

*UTM location was derived from PLSS - see Help

(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) (in feet)																										
(acre ft per annum)																										
WR File Nbr	Sub	basin	Use	Diversion	Cnty	POD Number	Well	Tag	Code	Grant	Source	q	q	q	4	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Depth	Depth	
																								Well	Water	
J 00025	J	COM		500	LE	J 00003 POD2					Shallow	1	1	2	30	26S	36E		660265	3543972	4824					99
J 00026	J	COM		500	LE	J 00003 POD2					Shallow	1	1	2	30	26S	36E		660265	3543972	4824					99
J 00002	J	MUN		986	LE	J 00002							3	2	13	26S	35E		658705	3546666*	4845					

Record Count: 21

UTMNAD83 Radius Search (in meters):

Easting (X): 655541 Northing (Y): 3542996 Radius: 5000

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.

Arena Roja Federal Unit 1

Distance to nearest town: 11 miles SW of Jal, NM

Legend

-  Arena Roja Fed Unit 1
-  City of Jal

Arena Roja Fed Unit 1

City of Jal

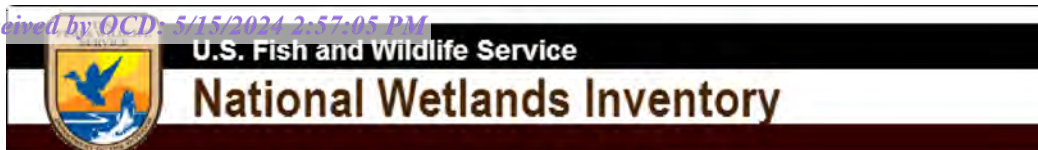
Lea County/Jal Airport E26

Google Earth

Released to Imaging: 6/3/2024 11:12:52 AM

5 mi





Arena Roja Fed Unit 2 CTB 1.5 mi Wetland



May 17, 2023

Wetlands

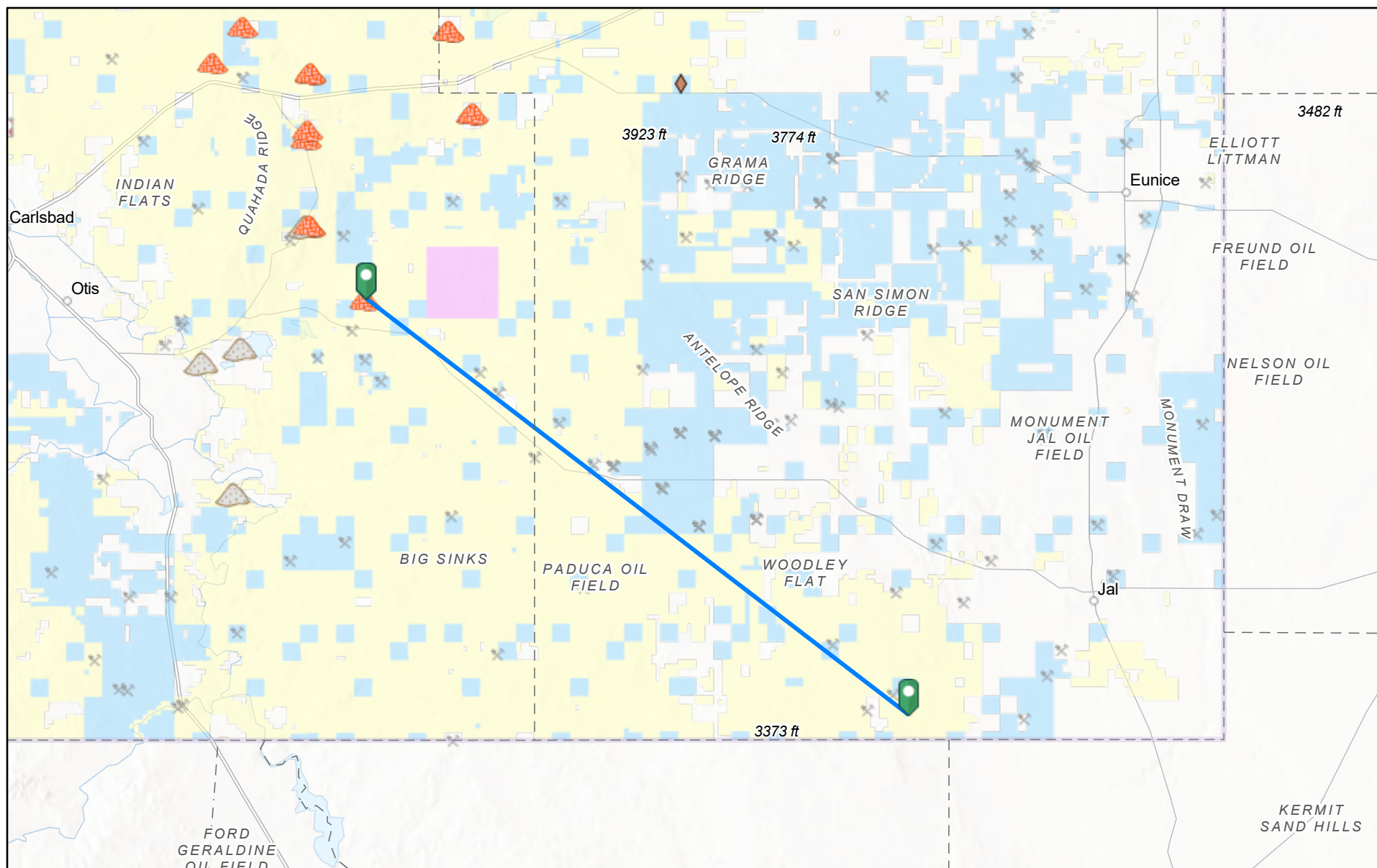
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

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

- Lake
- Other
- Riverine

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

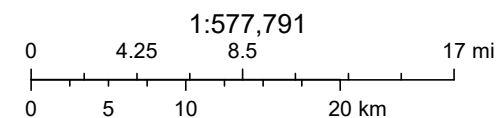
Arena Roja Federal Unit CTB 1 38 Miles to Subsurface Mine



1/16/2024, 3:29:31 PM

Registered Mines

- | | | | |
|-----------------------|-----------------------------|----------------|-----|
| Aggregate, Stone etc. | Aggregate, Stone etc. | Salt | BOR |
| Aggregate, Stone etc. | Industrial Minerals (Other) | Land Ownership | DOE |
| Aggregate, Stone etc. | Potash | BLM | P |
| Aggregate, Stone etc. | | | S |

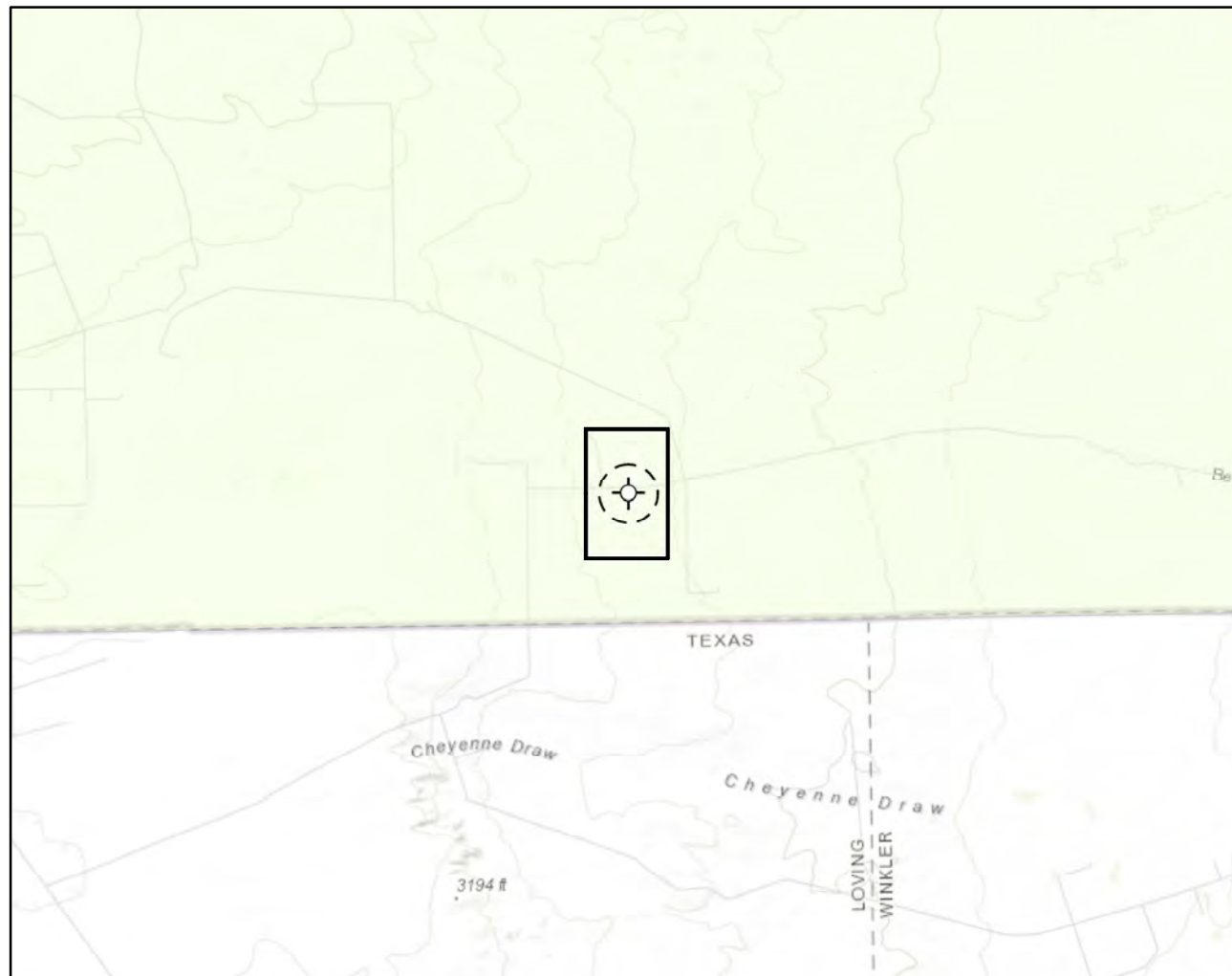


U.S. BLM, Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, Esri, CGIAR,

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\2023\23E-02841 - Arena Roja Fed Unit 2 CTB\Figure X Karst Potential Schematic (23E-02841). Request#15885.mxd



Karst Potential

- Critical
- High
- Medium
- Low

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

Overview Map

0 0.25 0.5 1 mi



Detail Map

0 150 300 600 ft.



Map Center:
Lat/Long: 32.012405, -103.353165

NAD 1983 UTM Zone 13N
Date: Jun 22/23



Karst Potential Schematic Arena Roja Fed Unit 1

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

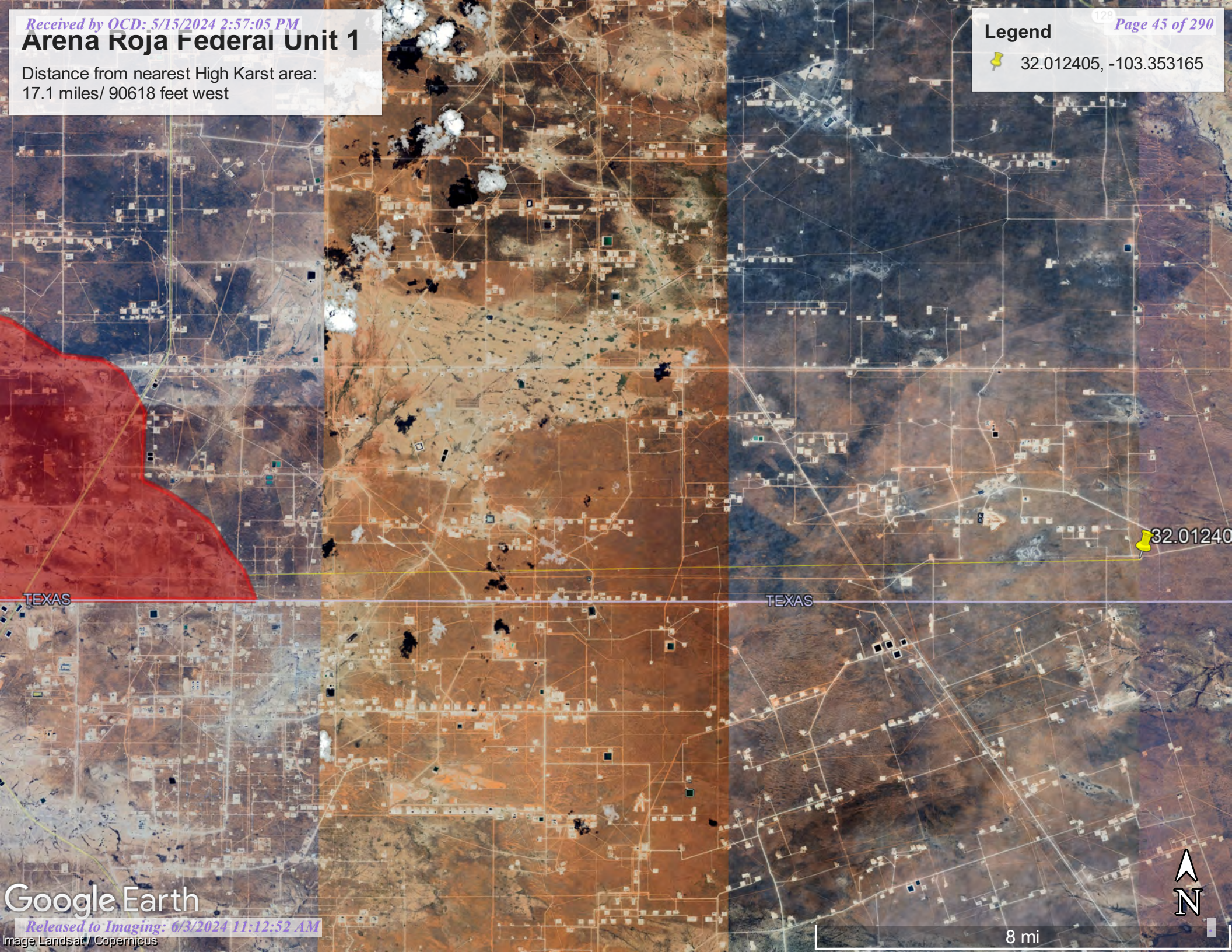
VERSATILITY. EXPERTISE.

Arena Roja Federal Unit 1

Distance from nearest High Karst area:
17.1 miles/ 90618 feet west

Legend

 32.012405, -103.353165



TEXAS

TEXAS

32.012405

Google Earth

Released to Imaging: 6/3/2024 11:12:52 AM

Image Landsat / Copernicus

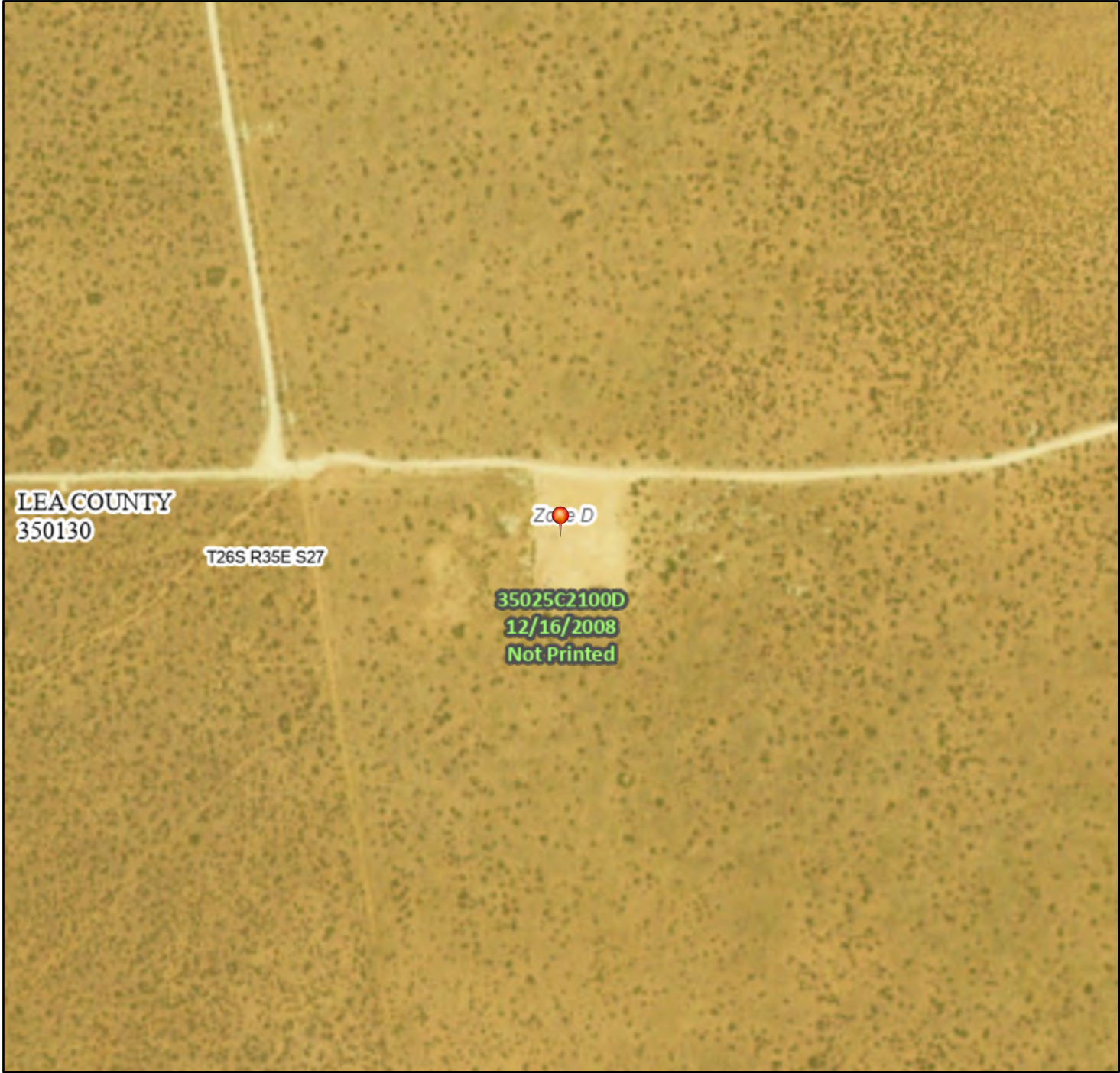


8 mi

National Flood Hazard Layer FIRMette



103°21'30"W 32°1'N



Legend

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

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



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

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


The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/17/2023 at 4:53 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.

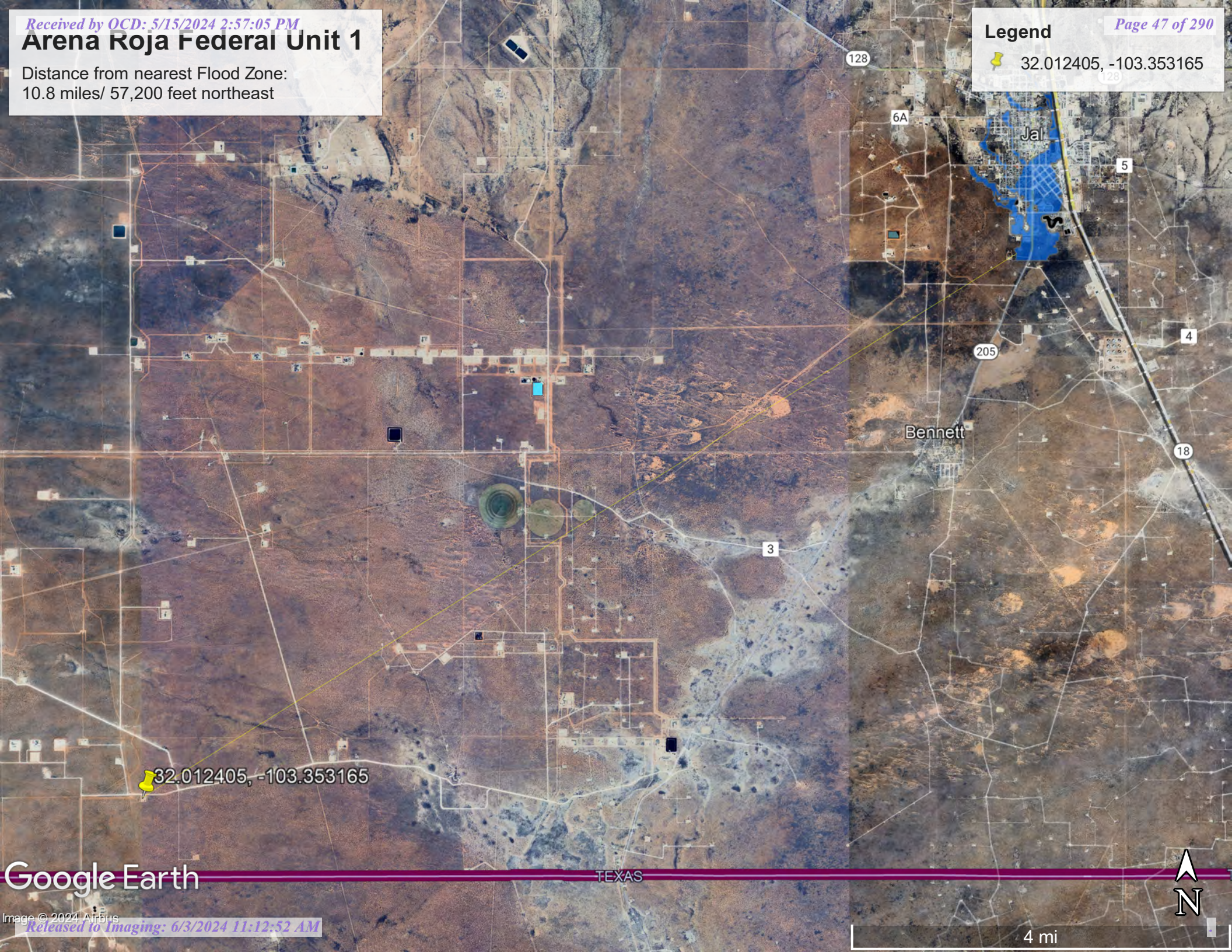
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory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

Arena Roja Federal Unit 1

Distance from nearest Flood Zone:
10.8 miles/ 57,200 feet northeast

Legend

 32.012405, -103.353165



Google Earth

Image © 2024 Airbus

Released to Imaging: 6/3/2024 11:12:52 AM

TEXAS

4 mi





United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for Lea County, New Mexico



September 5, 2023

Preface

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

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

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

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

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

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

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

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

Contents

Preface..... 2

How Soil Surveys Are Made.....5

Soil Map..... 8

 Soil Map.....9

 Legend.....10

 Map Unit Legend..... 11

 Map Unit Descriptions.....11

 Lea County, New Mexico..... 13

 PU—Pyote and Maljamar fine sands..... 13

References..... 15

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

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

Date(s) aerial images were photographed: Mar 20, 2020—Mar 22, 2020

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

Custom Soil Resource Report

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PU	Pyote and Maljamar fine sands	2.9	100.0%
Totals for Area of Interest		2.9	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.

Custom Soil Resource Report

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

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

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

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

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

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

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

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

Custom Soil Resource Report

Lea County, New Mexico

PU—Pyote and Maljamar fine sands

Map Unit Setting

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

Map Unit Composition

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

Description of Pyote

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Custom Soil Resource Report

Description of Maljamar**Setting**

Landform: Plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 24 inches: fine sand

Bt - 24 to 50 inches: sandy clay loam

Bkm - 50 to 60 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 40 to 60 inches to petrocalcic

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Gypsum, maximum content: 1 percent

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

Sodium adsorption ratio, maximum: 2.0

Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Ecological site: R070BD003NM - Loamy Sand

Hydric soil rating: No

Minor Components**Kermit**

Percent of map unit: 10 percent

Ecological site: R070BC022NM - Sandhills

Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

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

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

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



Ecological site R070BD003NM

Loamy Sand

Accessed: 09/05/2023

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

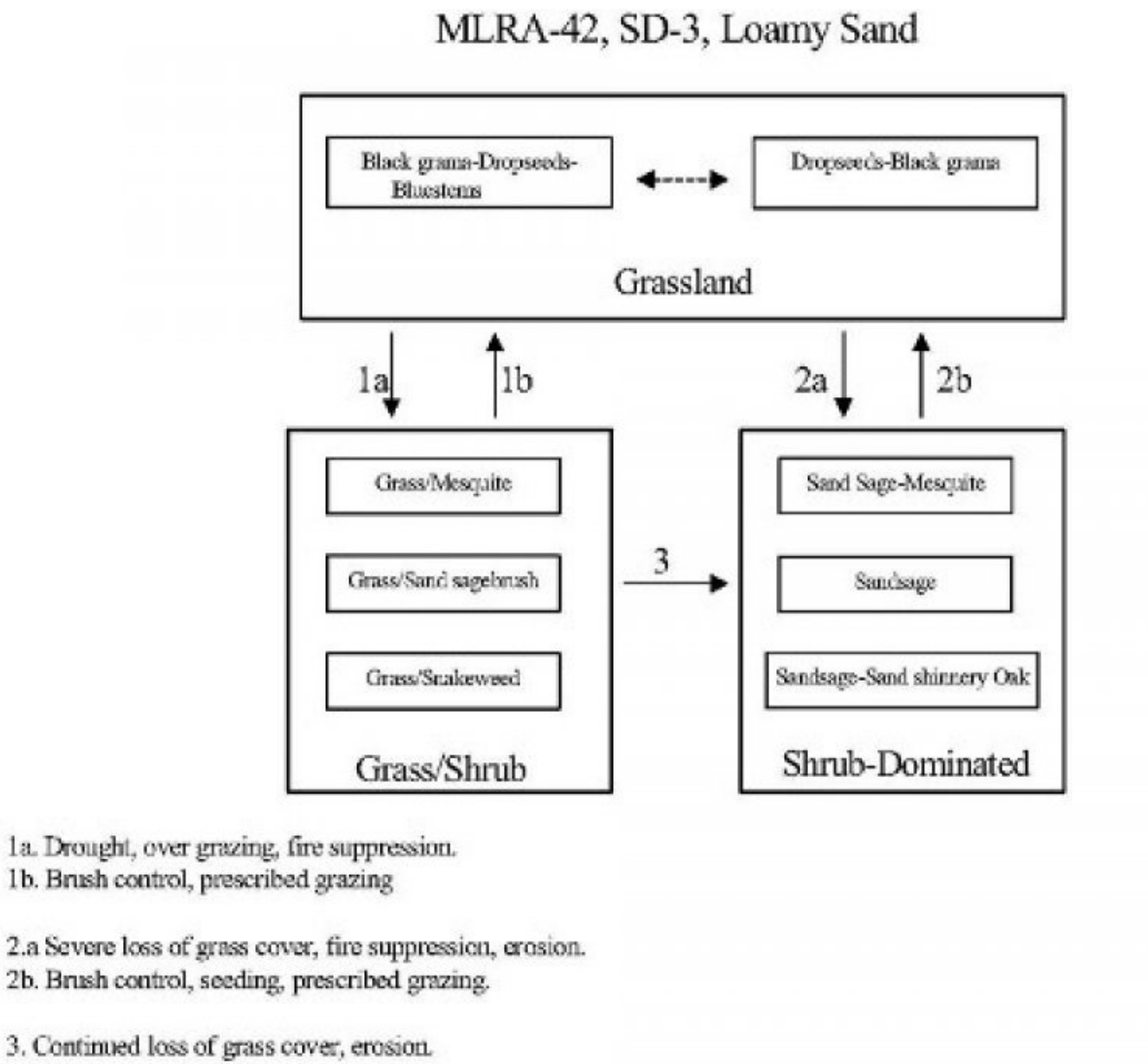
Overview

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):



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.

Other references

Literature Cited:

Ansley, R. J.; Jacoby, P. W. 1998. Manipulation of fire intensity to achieve mesquite management goals in north Texas. In: Pruden, Teresa L.; Brennan, Leonard A., eds. Fire in ecosystem management: shifting the paradigm from suppression to prescription: Proceedings, Tall Timbers fire ecology conference; 1996 May 7-10; Boise, ID. No. 20. Tallahassee, FL: Tall Timbers Research Station: 195-204.

Ansley, R. J.; Jones, D. L.; Tunnell, T. R.; [and others]. 1998. Honey mesquite canopy responses to single winter fires: relation to herbaceous fuel, weather and fire temperature. International Journal of Wildland Fire 8(4):241-252.

Britton, Carlton M.; Wright, Henry A. 1971. Correlation of weather and fuel variables to mesquite damage by fire. Journal of Range Management 24:136-141.

Davis, Joseph H., III and Bonham, Charles D. 1979. Interference of sand sagebrush canopy with needleandthread. Journal of Range Management 32(5):384-386.

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

McDaniel, Kirk C.; Pieper, Rex D.; Loomis, Lyn E.; Osman, Abdelgader A. 1984. Taxonomy and ecology of perennial snakeweeds in New Mexico. Bulletin 711. Las Cruces, NM: New Mexico State University, Agricultural Experiment Station. 34 p.

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

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

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

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

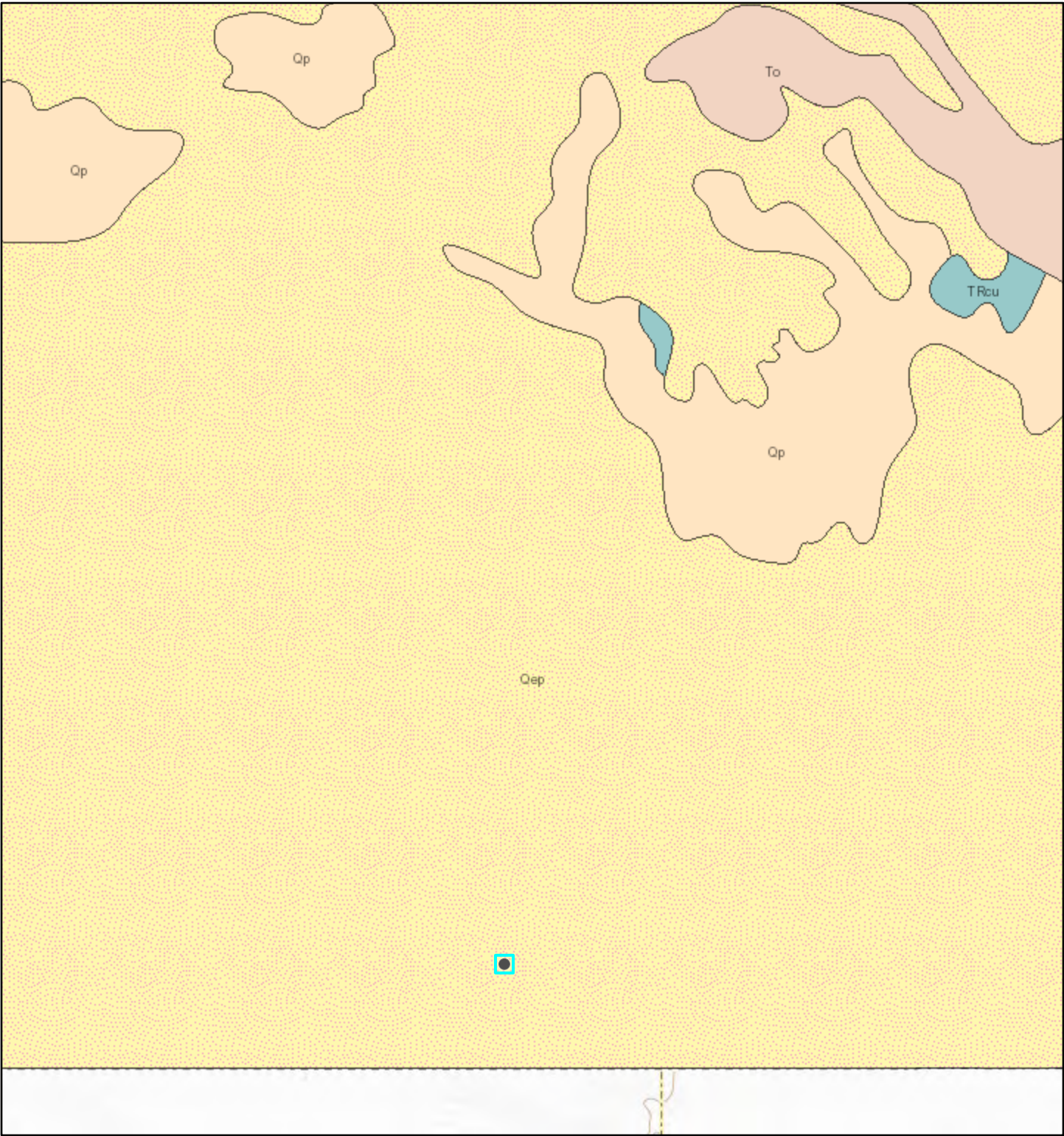
5. Number of gullies and erosion associated with gullies:

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

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

17. Perennial plant reproductive capability:

Arena Roja Federal Geology

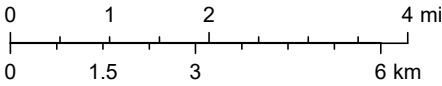


9/5/2023, 10:54:31 AM

1:144,448

Lithologic Units

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



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

ArcGIS Web AppBuilder

APPENDIX C – Daily Field and Sampling Reports



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/15/2023
Site Location Name:	Arena Roja Fed Unit 1 CTB	Report Run Date:	5/16/2023 1:07 AM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/15/2023 4:27 PM
Departed Site	5/15/2023 5:01 PM

Field Notes

16:56 On site to white line/flag areas for excavation. Placed four wooden stakes throughout the majority of the pad. The white line should outline and encompass all areas described by the C-141 and other areas with possible soil contamination. Stakes were placed near each corner of the location and its corresponding coordinates will be noted in 811 ticket.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: Southeast



Northwest corner of white line

Viewing Direction: Southwest



Northeast corner of white line

Viewing Direction: Northwest



Southeast corner of white line

Viewing Direction: Northeast



Southwest corner of white line



Daily Site Visit Report

Viewing Direction: Northeast



Descriptive Photo - 5
Viewing Direction: Northeast
Note: Current site activities
Created: 5/15/2023 4:44:35 PM
Lat:32.012316, Long:-103.533346

Current site activities

Viewing Direction: Southeast



Descriptive Photo - 6
Viewing Direction: Southeast
Note: Current site activities
Created: 5/15/2023 4:46:43 PM
Lat:32.012316, Long:-103.533346

Current site activities

Viewing Direction: South



Descriptive Photo - 7
Viewing Direction: South
Note: Underground pipeline spotted by hydrovac operations
Created: 5/15/2023 4:50:26 PM
Lat:32.012316, Long:-103.533346

Underground pipeline spotted by hydrovac operations

Viewing Direction: Southeast



Descriptive Photo - 8
Viewing Direction: Southeast
Note: Possible soil staining
Created: 5/15/2023 4:51:08 PM
Lat:32.012316, Long:-103.533346

Possible soil staining

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 
Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/31/2023
Site Location Name:	Arena Roja Fed Unit 2 CTB	Report Run Date:	7/31/2023 11:32 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	7/31/2023 11:50 AM
Departed Site	7/31/2023 3:15 PM

Field Notes

- 13:40** Arrived on Arena Roja Unit #1 to continue collecting samples relative to Arena Roja Fed Unit 2 CTB. Examined site and location to determine best location for marking proposed sample points relative to C-141 information and site indicators. Swept area for lines with magnetic locator.
- 14:49** Collected samples BH23-01 through BH23-06 at 0 and 2 feet. Field screened for chlorides with EC meter, hydrocarbons with Dexsil Petroflag and VOCs with PID.
- 15:09** Prepared samples for lab and backfilled borehole sample points.

Next Steps & Recommendations

- 1 Send samples to lab
- 2 Continue delineating



Daily Site Visit Report

Site Photos

Viewing Direction: Southeast



Location of repaired, underground pipeline

Viewing Direction: South



BH23-01 0, 2ft

Viewing Direction: Southeast



BH23-02 0, 2ft

Viewing Direction: South



BH23-04 0, 2ft




Daily Site Visit Report

<p>Viewing Direction: Southeast</p>  <p>Descriptive Photo - 5 Viewing Direction: Southeast Desc: BH23-03 0, 2ft Created: 7/31/2023 1:31:53 PM Lat:32.012483, Long:-103.353290</p>	<p>Viewing Direction: South</p>  <p>Descriptive Photo - 6 Viewing Direction: South Desc: BH23-06 0, 2ft Created: 7/31/2023 1:32:43 PM Lat:32.012542, Long:-103.353271</p>
BH23-03 0, 2ft	BH23-06 0, 2ft
<p>Viewing Direction: Southeast</p>  <p>Descriptive Photo - 7 Viewing Direction: Southeast Desc: BH23-05 0, 2ft Created: 7/31/2023 1:33:24 PM Lat:32.012594, Long:-103.353345</p>	<p>Viewing Direction: South</p>  <p>Descriptive Photo - 8 Viewing Direction: South Desc: Sample site information placard Created: 7/31/2023 2:50:20 PM Lat:32.012045, Long:-103.352748</p>
BH23-05 0, 2ft	Sample site information placard



Daily Site Visit Report

Viewing Direction: South	
	 <p>Descriptive Photo - 9 Viewing Direction: South Desc: Sample area and backfilled boreholes with Created: 7/31/2023 2:57:05 PM Lat:32.016317 Long: -101.403346</p>
Sample area and backfilled boreholes with marked samples points requiring further delineation	

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature:

A handwritten signature in black ink, appearing to read 'Steph M', written over a thin horizontal line. The word 'Signature' is faintly visible below the line.



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	8/7/2023
Site Location Name:	Arena Roja Fed Unit 2 CTB	Report Run Date:	8/7/2023 11:52 PM
Client Contact Name:	Jim Raley	API #:	
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	8/7/2023 9:32 AM
Departed Site	8/7/2023 3:15 PM

Field Notes

10:58 Completed safety paperwork and initial line location upon arrival.

10:59 Continued delineation efforts on SW part of the side

13:14 Obtained BH23-7 to 12. All samples obtained at 0 and 2 foot depth. Besides that BH23-8 and 9 were sampled at 4 foot.

15:04 Field screened for Cl, VOC, and TPH(PetroFlag) all 15 samples

Next Steps & Recommendations

1 Continue delineation

Daily Site Visit Report



Site Photos

Viewing Direction: South



Site Placard

Viewing Direction: South



BH23-12 at 4 foot

Viewing Direction: South



Sampling area for the day





Viewing Direction: South



Stop sampling area for the day. Delineation efforts will start here tomorrow (8.8.23)



Daily Site Visit Report

<p>Viewing Direction: South</p>  <p>Descriptive Photo - 2 Viewing Direction: South Desc: BH23-8 Created: 8/7/2023 11:13:38 AM Lat:32.012197, Long:-103.353304</p>	<p>Viewing Direction: South</p>  <p>Descriptive Photo - 3 Viewing Direction: South Desc: BH23-07 Created: 8/7/2023 11:14:12 AM Lat:32.012196, Long:-103.353350</p>
BH23-8	BH23-07
<p>Viewing Direction: South</p>  <p>Descriptive Photo - 4 Viewing Direction: South Desc: BH23-10 Created: 8/7/2023 11:14:04 AM Lat:32.012108, Long:-103.353385</p>	<p>Viewing Direction: South</p>  <p>Descriptive Photo - 5 Viewing Direction: South Desc: BH23-09 Created: 8/7/2023 11:14:57 AM Lat:32.012126, Long:-103.353282</p>
BH23-10	BH23-09



Daily Site Visit Report

Viewing Direction: South



BH23-8 at 4 foot

Viewing Direction: South



BH23-11

Viewing Direction: South



BH23-12

Viewing Direction: South



BH23-09 at 4 foot

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature:

Signature

A handwritten signature in black ink, appearing to be 'Deusavan Costa Filho', written over a horizontal line.



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	8/8/2023
Site Location Name:	Arena Roja Fed Unit 2 CTB	Report Run Date:	8/9/2023 12:04 AM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	8/8/2023 9:09 AM
Departed Site	8/8/2023 3:32 PM

Field Notes

- 14:58** Completed safety paperwork and initial line location upon arrival
- 14:59** Continued delineation efforts on the SW part of the site
- 15:03** Obtained BH23-13 to 20 at 0 and 2 foot. Besides that BH23-12, 16, 17 were obtained at 4 foot. Finally BH23- 12 and 17 were obtained at 6 foot.
- 15:09** Field screened for Cl and VOC all 20 samples while for TPH (PetroFlag) BH23-14(0'; 2'), BH23-16 (4'), BH23-17(2'; 4',6'), and BH23-20(0'; 2') were tested.
- 15:11** Extended the one call are to SW part of the pad.

Next Steps & Recommendations

- 1 Continued delineation on NE and SW part of the release where horizontal wasn't find.
- 2 Extended the one call for the SW corner of the site (outside of the fence

Daily Site Visit Report



Site Photos

Viewing Direction: South



Site placard

Viewing Direction: South



BH23-17 at 6 foot

Viewing Direction: Northeast



BH23-18

Viewing Direction: North



BH23-19



Daily Site Visit Report

Viewing Direction: North



BH23-20

Viewing Direction: South



BH23-14

Viewing Direction: South



BH23-13

Viewing Direction: East



BH23-15



Daily Site Visit Report

Viewing Direction: East



BH23-16

Viewing Direction: South



BH23-17

Viewing Direction: East



BH23-15 at 4 foot

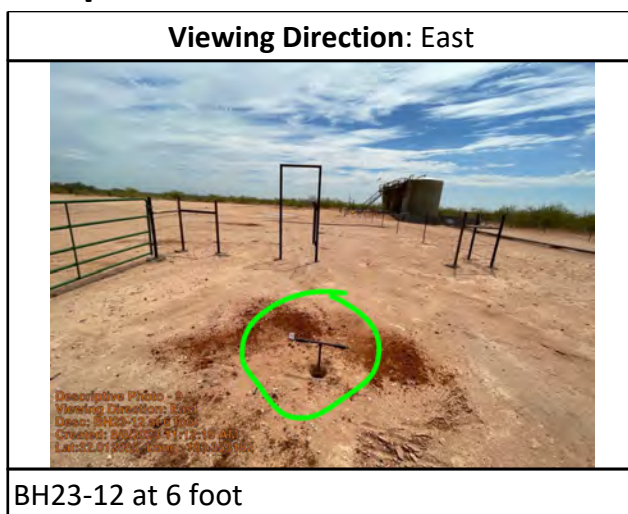
Viewing Direction: East



BH23-16 at 4 foot



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature:

A handwritten signature in black ink, appearing to be 'Deusavan Costa Filho', written over a horizontal line.

Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	8/17/2023
Site Location Name:	Arena Roja Fed Unit 2 CTB	Report Run Date:	8/18/2023 1:15 AM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	8/17/2023 8:45 AM
Departed Site	8/17/2023 4:00 PM

Field Notes

- 15:10** Completed safety paperwork and initial line location upon arrival
- 15:11** Continued delineation on the east and north side of the release area.
- 15:12** Obtained BH23-32 to 35 at 0 and 2 foot depth.
- 15:25** BH23-32 was clean and marked as the NE edge of release area.
- 15:23** For the east side only after 4 attempts (BH23-33, 34 and 36) a clean sample was collected (BH23-37). In addition, a clean sample was collected on the NW corner (BH23-35) of the release area.
- 15:35** All samples were field screened for CI and VOC while TPH was tested only for BH23-32, 35 and 37.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: South



Site placard

Viewing Direction: West



BH23-32

Viewing Direction: West



BH23-33

Viewing Direction: West



BH-34



Daily Site Visit Report

Viewing Direction: North



BH23-35

Viewing Direction: West



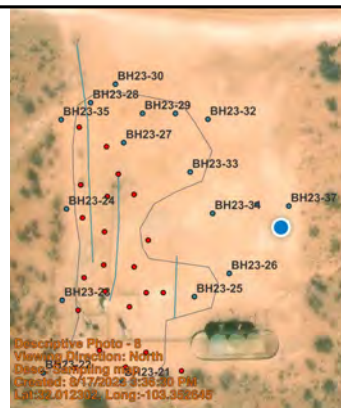
BH23-36

Viewing Direction: West



BH23-37

Viewing Direction: North



Sampling map

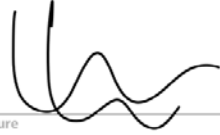
Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature:


Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/25/2023
Site Location Name:	Arena Roja Fed Unit 2 CTB	Report Run Date:	9/26/2023 12:29 AM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/25/2023 8:54 AM
Departed Site	9/25/2023 4:17 PM

Field Notes

- 15:51** Completed safety paperwork and located excavation area upon arrival.
- 15:56** Two excavations located on site. One at 3 ft deep around BH23-17 (19x16 ft) and another at 1 ft deep around (22x16 ft)BH23-12.
- 16:00** Obtained composed WES23-01 to 04 where 01 and 02 at 3 ft and 02 to 04 at 1 ft. Obtained BES23-01 to 03 where 01 was at 3 ft and 02 and 3 at 1 ft. Finally obtained BH23-12 at 7 ft. All samples are dark-red sand soil.
- 16:02** All samples where field-screened for TPH and Cl. Only WES23-01 at 3 ft had TPH about 600 ppm where the following samples have values under 30 ppm. Cl is under 600 ppm for all samples.
- 16:04** All samples were jarred and sent to the lab. Both excavation have wall and base clean at the first sampling attempt.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: South



Site placard

Viewing Direction: West



3ft excavation BH23-17. 16 ft

Viewing Direction: South



3ft excavation BH23-17. Bottom sample points.

Viewing Direction: Southeast



3ft excavation BH23-17. Wall sample 1



Daily Site Visit Report

Viewing Direction: Northwest



3ft excavation BH23-17. Wall sample 2

Viewing Direction: South



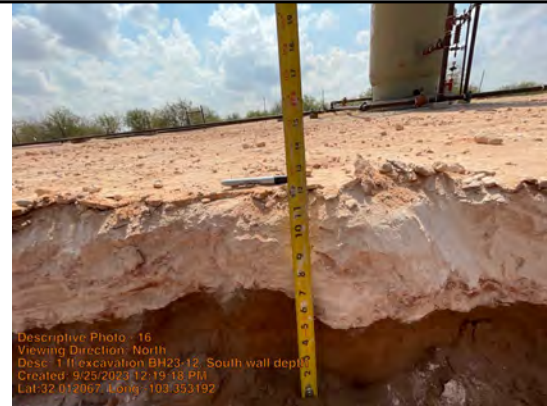
1 ft excavation BH23-12

Viewing Direction: North



1 ft excavation BH23-12





Viewing Direction: North



1 ft excavation BH23-12. South wall depth



Daily Site Visit Report

<p>Viewing Direction: South</p>  <p>Descriptive Photo - 17 Viewing Direction: South Date: 9/25/2023 12:20:53 PM Created: 9/25/2023 12:20:53 PM Lat: 32.012053, Long: -103.453228</p> <p>1 ft excavation BH23-12. South wall</p>	<p>Viewing Direction: West</p>  <p>Descriptive Photo - 18 Viewing Direction: West Date: 9/25/2023 12:30:28 PM Created: 9/25/2023 12:30:28 PM Lat: 32.012082, Long: -103.453202</p> <p>1 ft excavation BH23-12. West wall</p>
<p>Viewing Direction: North</p>  <p>Descriptive Photo - 19 Viewing Direction: North Date: 9/25/2023 12:35:49 PM Created: 9/25/2023 12:35:49 PM Lat: 32.011321, Long: -103.453221</p> <p>1 ft excavation BH23-12. North wall</p>	<p>Viewing Direction: East</p>  <p>Descriptive Photo - 20 Viewing Direction: East Date: 9/25/2023 12:40:18 PM Created: 9/25/2023 12:40:18 PM Lat: 32.011321, Long: -103.453221</p> <p>BH23-12 at 7 to 8 ft.</p>



Daily Site Visit Report

Viewing Direction: East



1 ft excavation BH23-12. East wall

Viewing Direction: South



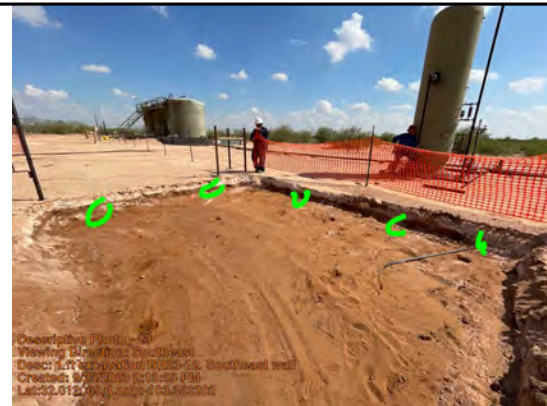
1 ft excavation BH23-12. Bottom sample 1. West side

Viewing Direction: South



1 ft excavation BH23-12. Bottom sample 2. East side

Viewing Direction: Southeast



1 ft excavation BH23-12. Southeast wall sampling points



Daily Site Visit Report

Viewing Direction: Northwest



1 ft excavation BH23-12. Southeast wall sampling points

Viewing Direction: North



Soil from 3 ft excavation BH23-17

Viewing Direction: South



3ft excavation BH23-17





Viewing Direction: North



3ft excavation BH23-17



Daily Site Visit Report

<p>Viewing Direction: South</p>  <p>3ft excavation BH23-17. South wall</p>	<p>Viewing Direction: South</p>  <p>3ft excavation BH23-17. 17 ft longer</p>
<p>Viewing Direction: East</p>  <p>3ft excavation BH23-17. 17</p>	<p>Viewing Direction: North</p>  <p>3ft excavation BH23-17. 19 ft</p>


Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature:


Signature

APPENDIX D – Notifications



Dhugal Hanton <vertexresourcegroupusa@gmail.com>

48 Hour Sampling Notification for Arena Roja Fed Unit 1

2 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Tue, Oct 3, 2023 at 4:39 PM

To: "Hamlet, Robert, EMNRD" <Robert.Hamlet@emnrd.nm.gov>, "Wells, Shelly, EMNRD" <shelly.wells@emnrd.nm.gov>, "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>

Cc: mmoffitt@vertex.ca, kstallings@vertex.ca

All,

Please accept this email as notification that Vertex Resource Services has scheduled a sampling event to be conducted at the following releases.

Arena Roja Unit CTB 1, 30-025-37257, nAPP2311745706

On Friday, October 6, 2023, at approximately 10:00 a.m., Vertex will be on-site to conduct confirmation sampling. If you have any questions regarding this notification, please call at 346-814-1413.

V/R,

Steph McCarty

Environmental Technician

Vertex Resource Services Inc.

3101 Boyd Drive,

Carlsbad, NM 88220

C 575.263.3295www.vertex.ca

Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>

Tue, Oct 3, 2023 at 4:57 PM

To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>, "Hamlet, Robert, EMNRD" <Robert.Hamlet@emnrd.nm.gov>, "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Velez, Nelson, EMNRD" <Nelson.Velez@emnrd.nm.gov>

Cc: "mmoffitt@vertex.ca" <mmoffitt@vertex.ca>, "kstallings@vertex.ca" <kstallings@vertex.ca>

Hi Steph,

The OCD has received your notification. 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.

Thank you,

Shelly

Shelly Wells * Environmental Specialist-Advanced

Environmental Bureau

EMNRD-Oil Conservation Division

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

(505)469-7520|Shelly.Wells@emnrd.nm.gov

<http://www.emnrd.state.nm.us/OCD/>

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>

Sent: Tuesday, October 3, 2023 4:40 PM

To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>; Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>

Cc: mmoffitt@vertex.ca; kstallings@vertex.ca

Subject: [EXTERNAL] 48 Hour Sampling Notification for Arena Roja Fed Unit 1

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

[Quoted text hidden]

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms



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

August 17, 2023

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: Arena Roja Unit 1

OrderNo.: 2308080

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 8/2/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-01 0'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 12:45:00 PM

Lab ID: 2308080-001

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	8/3/2023 1:23:36 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/3/2023 1:23:36 AM
Surr: DNOP	92.4	69-147		%Rec	1	8/3/2023 1:23:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/5/2023 1:24:21 AM
Surr: BFB	92.1	15-244		%Rec	1	8/5/2023 1:24:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/5/2023 1:24:21 AM
Toluene	ND	0.049		mg/Kg	1	8/5/2023 1:24:21 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/5/2023 1:24:21 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/5/2023 1:24:21 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/5/2023 1:24:21 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	5200	300		mg/Kg	100	8/8/2023 10:35:30 AM

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2308080
Date Reported: 8/17/2023

CLIENT: Devon Energy
Project: Arena Roja Unit 1
Lab ID: 2308080-002
Matrix: SOIL
Client Sample ID: BH23-01 2'
Collection Date: 7/31/2023 12:50:00 PM
Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	8/3/2023 1:48:12 AM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	8/3/2023 1:48:12 AM
Surr: DNOP	92.7	69-147		%Rec	1	8/3/2023 1:48:12 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/5/2023 1:47:42 AM
Surr: BFB	92.6	15-244		%Rec	1	8/5/2023 1:47:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/5/2023 1:47:42 AM
Toluene	ND	0.049		mg/Kg	1	8/5/2023 1:47:42 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/5/2023 1:47:42 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/5/2023 1:47:42 AM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/5/2023 1:47:42 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	640	61		mg/Kg	20	8/7/2023 10:56:05 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.		

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-02 0'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 12:45:00 PM

Lab ID: 2308080-003

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	8/3/2023 2:12:53 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/3/2023 2:12:53 AM
Surr: DNOP	95.2	69-147		%Rec	1	8/3/2023 2:12:53 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/5/2023 2:11:05 AM
Surr: BFB	94.7	15-244		%Rec	1	8/5/2023 2:11:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/5/2023 2:11:05 AM
Toluene	ND	0.048		mg/Kg	1	8/5/2023 2:11:05 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/5/2023 2:11:05 AM
Xylenes, Total	ND	0.096		mg/Kg	1	8/5/2023 2:11:05 AM
Surr: 4-Bromofluorobenzene	113	39.1-146		%Rec	1	8/5/2023 2:11:05 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	1600	60		mg/Kg	20	8/7/2023 11:08:26 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.		

Page 3 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-02 2'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 12:55:00 PM

Lab ID: 2308080-004

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/3/2023 6:03:07 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/3/2023 6:03:07 PM
Surr: DNOP	87.6	69-147		%Rec	1	8/3/2023 6:03:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/5/2023 5:06:00 AM
Surr: BFB	98.7	15-244		%Rec	1	8/5/2023 5:06:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/5/2023 5:06:00 AM
Toluene	ND	0.048		mg/Kg	1	8/5/2023 5:06:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/5/2023 5:06:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	8/5/2023 5:06:00 AM
Surr: 4-Bromofluorobenzene	93.3	39.1-146		%Rec	1	8/5/2023 5:06:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	190	60		mg/Kg	20	8/7/2023 11:20:47 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.		

Page 4 of 19

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2308080
Date Reported: 8/17/2023

CLIENT: Devon Energy
Project: Arena Roja Unit 1
Lab ID: 2308080-005
Matrix: SOIL
Client Sample ID: BH23-03 0'
Collection Date: 7/31/2023 1:02:00 PM
Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/3/2023 7:18:08 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/3/2023 7:18:08 PM
Surr: DNOP	90.9	69-147		%Rec	1	8/3/2023 7:18:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/5/2023 6:11:00 AM
Surr: BFB	95.4	15-244		%Rec	1	8/5/2023 6:11:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/5/2023 6:11:00 AM
Toluene	ND	0.048		mg/Kg	1	8/5/2023 6:11:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/5/2023 6:11:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	8/5/2023 6:11:00 AM
Surr: 4-Bromofluorobenzene	93.8	39.1-146		%Rec	1	8/5/2023 6:11:00 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	5000	300		mg/Kg	100	8/8/2023 10:47:54 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 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-03 2'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:06:00 PM

Lab ID: 2308080-006

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/3/2023 7:43:03 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/3/2023 7:43:03 PM
Surr: DNOP	89.1	69-147		%Rec	1	8/3/2023 7:43:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/5/2023 7:16:00 AM
Surr: BFB	93.3	15-244		%Rec	1	8/5/2023 7:16:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/5/2023 7:16:00 AM
Toluene	ND	0.046		mg/Kg	1	8/5/2023 7:16:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/5/2023 7:16:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/5/2023 7:16:00 AM
Surr: 4-Bromofluorobenzene	93.0	39.1-146		%Rec	1	8/5/2023 7:16:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	470	59		mg/Kg	20	8/7/2023 11:45:27 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.		

Page 6 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-04 0'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:00:00 PM

Lab ID: 2308080-007

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/3/2023 8:07:47 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/3/2023 8:07:47 PM
Surr: DNOP	92.3	69-147		%Rec	1	8/3/2023 8:07:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/5/2023 7:38:00 AM
Surr: BFB	95.2	15-244		%Rec	1	8/5/2023 7:38:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	8/5/2023 7:38:00 AM
Toluene	ND	0.049		mg/Kg	1	8/5/2023 7:38:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/5/2023 7:38:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	8/5/2023 7:38:00 AM
Surr: 4-Bromofluorobenzene	91.3	39.1-146		%Rec	1	8/5/2023 7:38:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	83	60		mg/Kg	20	8/7/2023 11:57:48 PM

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

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

Page 7 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-04 2'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:05:00 PM

Lab ID: 2308080-008

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/3/2023 8:32:29 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/3/2023 8:32:29 PM
Surr: DNOP	91.0	69-147		%Rec	1	8/3/2023 8:32:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/5/2023 7:59:00 AM
Surr: BFB	96.5	15-244		%Rec	1	8/5/2023 7:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/5/2023 7:59:00 AM
Toluene	ND	0.047		mg/Kg	1	8/5/2023 7:59:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/5/2023 7:59:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	8/5/2023 7:59:00 AM
Surr: 4-Bromofluorobenzene	93.0	39.1-146		%Rec	1	8/5/2023 7:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	8/8/2023 12:34:50 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.		

Page 8 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-05 0'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:11:00 PM

Lab ID: 2308080-009

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/3/2023 8:57:12 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/3/2023 8:57:12 PM
Surr: DNOP	95.7	69-147		%Rec	1	8/3/2023 8:57:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/5/2023 8:21:00 AM
Surr: BFB	96.8	15-244		%Rec	1	8/5/2023 8:21:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/5/2023 8:21:00 AM
Toluene	ND	0.048		mg/Kg	1	8/5/2023 8:21:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/5/2023 8:21:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	8/5/2023 8:21:00 AM
Surr: 4-Bromofluorobenzene	92.7	39.1-146		%Rec	1	8/5/2023 8:21:00 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	4000	150		mg/Kg	50	8/8/2023 11:00:19 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.		

Page 9 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-05 2'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:16:00 PM

Lab ID: 2308080-010

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/3/2023 9:21:55 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/3/2023 9:21:55 PM
Surr: DNOP	90.2	69-147		%Rec	1	8/3/2023 9:21:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/5/2023 8:43:00 AM
Surr: BFB	95.3	15-244		%Rec	1	8/5/2023 8:43:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/5/2023 8:43:00 AM
Toluene	ND	0.047		mg/Kg	1	8/5/2023 8:43:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/5/2023 8:43:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/5/2023 8:43:00 AM
Surr: 4-Bromofluorobenzene	93.3	39.1-146		%Rec	1	8/5/2023 8:43:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	120	60		mg/Kg	20	8/8/2023 12:59:31 AM

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

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

Page 10 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-06 0'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:10:00 PM

Lab ID: 2308080-011

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/3/2023 9:46:36 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/3/2023 9:46:36 PM
Surr: DNOP	92.0	69-147		%Rec	1	8/3/2023 9:46:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/5/2023 9:05:00 AM
Surr: BFB	97.9	15-244		%Rec	1	8/5/2023 9:05:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/5/2023 9:05:00 AM
Toluene	ND	0.047		mg/Kg	1	8/5/2023 9:05:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/5/2023 9:05:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	8/5/2023 9:05:00 AM
Surr: 4-Bromofluorobenzene	95.0	39.1-146		%Rec	1	8/5/2023 9:05:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	670	60		mg/Kg	20	8/8/2023 1:11:51 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	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 11 of 19

Analytical Report

Lab Order 2308080

Date Reported: 8/17/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-06 2'

Project: Arena Roja Unit 1

Collection Date: 7/31/2023 1:15:00 PM

Lab ID: 2308080-012

Matrix: SOIL

Received Date: 8/2/2023 7:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/3/2023 10:11:15 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/3/2023 10:11:15 PM
Surr: DNOP	91.4	69-147		%Rec	1	8/3/2023 10:11:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/5/2023 9:26:00 AM
Surr: BFB	101	15-244		%Rec	1	8/5/2023 9:26:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	8/5/2023 9:26:00 AM
Toluene	ND	0.050		mg/Kg	1	8/5/2023 9:26:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/5/2023 9:26:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	8/5/2023 9:26:00 AM
Surr: 4-Bromofluorobenzene	95.6	39.1-146		%Rec	1	8/5/2023 9:26:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	120	60		mg/Kg	20	8/8/2023 1:24:12 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	Above Quantitation Range/Estimated Value
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Page 12 of 19

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308080

17-Aug-23

Client: Devon Energy

Project: Arena Roja Unit 1

Sample ID: MB-76705		SampType: MBLK		TestCode: EPA Method 300.0: Anions						
Client ID: PBS		Batch ID: 76705		RunNo: 98797						
Prep Date: 8/7/2023		Analysis Date: 8/7/2023		SeqNo: 3599048		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76705		SampType: LCS		TestCode: EPA Method 300.0: Anions						
Client ID: LCSS		Batch ID: 76705		RunNo: 98797						
Prep Date: 8/7/2023		Analysis Date: 8/7/2023		SeqNo: 3599049		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 13 of 19

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308080

17-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: MB-76634	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76634	RunNo: 98691								
Prep Date: 8/2/2023	Analysis Date: 8/2/2023	SeqNo: 3594948 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		87.5	69	147			

Sample ID: LCS-76634	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76634	RunNo: 98691								
Prep Date: 8/2/2023	Analysis Date: 8/2/2023	SeqNo: 3594949 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	90.4	61.9	130			
Surr: DNOP	4.5		5.000		90.5	69	147			

Sample ID: 2308080-003AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-02 0'	Batch ID: 76634	RunNo: 98691								
Prep Date: 8/2/2023	Analysis Date: 8/3/2023	SeqNo: 3594971 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	8.5	42.70	0	90.7	54.2	135			
Surr: DNOP	4.0		4.270		94.1	69	147			

Sample ID: 2308080-003AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-02 0'	Batch ID: 76634	RunNo: 98691								
Prep Date: 8/2/2023	Analysis Date: 8/3/2023	SeqNo: 3594972 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	8.7	43.37	0	94.6	54.2	135	5.78	29.2	
Surr: DNOP	4.1		4.337		94.5	69	147	0	0	

Sample ID: MB-76662	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76662	RunNo: 98707								
Prep Date: 8/3/2023	Analysis Date: 8/3/2023	SeqNo: 3595632 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		87.0	69	147			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308080

17-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: LCS-76662	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76662	RunNo: 98707								
Prep Date: 8/3/2023	Analysis Date: 8/3/2023	SeqNo: 3595633	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.2	61.9	130			
Surr: DNOP	4.3		5.000		87.0	69	147			

Sample ID: 2308080-004AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-02 2'	Batch ID: 76662	RunNo: 98707								
Prep Date: 8/3/2023	Analysis Date: 8/3/2023	SeqNo: 3595636	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	9.4	46.77	0	92.7	54.2	135			
Surr: DNOP	4.1		4.677		87.1	69	147			

Sample ID: 2308080-004AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-02 2'	Batch ID: 76662	RunNo: 98707								
Prep Date: 8/3/2023	Analysis Date: 8/3/2023	SeqNo: 3595637	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.4	47.08	0	95.4	54.2	135	3.57	29.2	
Surr: DNOP	4.2		4.708		89.3	69	147	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical 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 15 of 19

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308080

17-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: ics-76628	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76628			RunNo: 98734						
Prep Date: 8/2/2023	Analysis Date: 8/4/2023			SeqNo: 3596713		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.7	70	130			
Surr: BFB	1900		1000		194	15	244			

Sample ID: ics-76657	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76657			RunNo: 98759						
Prep Date: 8/3/2023	Analysis Date: 8/5/2023			SeqNo: 3597313		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.4	70	130			
Surr: BFB	2000		1000		204	15	244			

Sample ID: mb-76657	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76657			RunNo: 98759						
Prep Date: 8/3/2023	Analysis Date: 8/5/2023			SeqNo: 3597314		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		95.5	15	244			

Sample ID: 2308080-004ams	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH23-02 2'	Batch ID: 76657			RunNo: 98759						
Prep Date: 8/3/2023	Analysis Date: 8/5/2023			SeqNo: 3597316		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	23.97	0	88.8	70	130			
Surr: BFB	2000		958.8		210	15	244			

Sample ID: 2308080-004amsd	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: BH23-02 2'	Batch ID: 76657			RunNo: 98759						
Prep Date: 8/3/2023	Analysis Date: 8/5/2023			SeqNo: 3597317		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.88	0	90.1	70	130	1.14	20	
Surr: BFB	2000		955.1		211	15	244	0	0	

Sample ID: mb-76628	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76628			RunNo: 98734						
Prep Date: 8/2/2023	Analysis Date: 8/4/2023			SeqNo: 3597690		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#: 2308080

17-Aug-23

Client: Devon Energy

Project: Arena Roja Unit 1

Sample ID: mb-76628	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76628	RunNo: 98734								
Prep Date: 8/2/2023	Analysis Date: 8/4/2023	SeqNo: 3597690 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.5	15	244			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

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

Analyte detected in the associated Method Blank
- E

Above Quantitation Range/Estimated Value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308080

17-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: LCS-76628	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76628	RunNo: 98734								
Prep Date: 8/2/2023	Analysis Date: 8/4/2023	SeqNo: 3596712	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.025	1.000	0	78.6	70	130			
Toluene	0.84	0.050	1.000	0	83.9	70	130			
Ethylbenzene	0.89	0.050	1.000	0	88.5	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.4	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		114	39.1	146			

Sample ID: lcs-76657	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76657	RunNo: 98759								
Prep Date: 8/3/2023	Analysis Date: 8/5/2023	SeqNo: 3597370	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	88.7	70	130			
Toluene	0.89	0.050	1.000	0	88.9	70	130			
Ethylbenzene	0.91	0.050	1.000	0	90.6	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.8	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	39.1	146			

Sample ID: mb-76657	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 76657	RunNo: 98759								
Prep Date: 8/3/2023	Analysis Date: 8/5/2023	SeqNo: 3597371	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		93.3	39.1	146			

Sample ID: 2308080-005ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH23-03 0'	Batch ID: 76657	RunNo: 98759								
Prep Date: 8/3/2023	Analysis Date: 8/5/2023	SeqNo: 3597374	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.024	0.9506	0	99.3	70	130			
Toluene	0.96	0.048	0.9506	0	100	70	130			
Ethylbenzene	0.98	0.048	0.9506	0	103	70	130			
Xylenes, Total	3.0	0.095	2.852	0	104	70	130			
Surr: 4-Bromofluorobenzene	0.92		0.9506		96.4	39.1	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 18 of 19

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308080

17-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: 2308080-005amsd		SampType: MSD			TestCode: EPA Method 8021B: Volatiles					
Client ID: BH23-03 0'		Batch ID: 76657			RunNo: 98759					
Prep Date: 8/3/2023		Analysis Date: 8/5/2023			SeqNo: 3597375		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.024	0.9588	0	97.2	70	130	1.19	20	
Toluene	0.93	0.048	0.9588	0	97.5	70	130	2.12	20	
Ethylbenzene	0.96	0.048	0.9588	0	101	70	130	1.45	20	
Xylenes, Total	2.9	0.096	2.876	0	101	70	130	2.02	20	
Surr: 4-Bromofluorobenzene	0.91		0.9588		95.4	39.1	146	0	0	

Sample ID: mb-76628		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS		Batch ID: 76628		RunNo: 98734						
Prep Date: 8/2/2023		Analysis Date: 8/4/2023		SeqNo: 3597753			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		112	39.1	146			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit



Hall Environmental Analysis Laboratory
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: 2308080

RcptNo: 1

Received By: Tracy Casarrubias 8/2/2023 7:10:00 AM

Completed By: Tracy Casarrubias 8/2/2023 7:32:00 AM

Reviewed By:

SCM 08/02/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°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: 7/8/2/23

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC - TMC 8/2/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Yes	Yogi		



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

August 18, 2023

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: CTB 2 Arena Roja Unit 1

OrderNo.: 2308474

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 15 sample(s) on 8/9/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com 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 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-07 0'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:10:00 AM

Lab ID: 2308474-001

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	11	9.4		mg/Kg	1	8/10/2023 3:26:24 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/10/2023 3:26:24 PM
Surr: DNOP	85.9	69-147		%Rec	1	8/10/2023 3:26:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/11/2023 1:49:45 PM
Surr: BFB	98.3	15-244		%Rec	1	8/11/2023 1:49:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/11/2023 1:49:45 PM
Toluene	ND	0.048		mg/Kg	1	8/11/2023 1:49:45 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/11/2023 1:49:45 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/11/2023 1:49:45 PM
Surr: 4-Bromofluorobenzene	112	39.1-146		%Rec	1	8/11/2023 1:49:45 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1700	60		mg/Kg	20	8/12/2023 9:50:52 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.		

Page 1 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-07 2'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:25:00 AM

Lab ID: 2308474-002

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: mb
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	8/10/2023 3:37:09 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/10/2023 3:37:09 PM
Surr: DNOP	102	69-147		%Rec	1	8/10/2023 3:37:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/11/2023 2:13:21 PM
Surr: BFB	99.8	15-244		%Rec	1	8/11/2023 2:13:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 2:13:21 PM
Toluene	ND	0.047		mg/Kg	1	8/11/2023 2:13:21 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/11/2023 2:13:21 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/11/2023 2:13:21 PM
Surr: 4-Bromofluorobenzene	113	39.1-146		%Rec	1	8/11/2023 2:13:21 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	180	60		mg/Kg	20	8/12/2023 1:21:51 PM

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

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

Page 2 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-08 0'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:15:00 AM

Lab ID: 2308474-003

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/11/2023 5:08:41 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/11/2023 5:08:41 PM
Surr: DNOP	109	69-147		%Rec	1	8/11/2023 5:08:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/11/2023 2:37:03 PM
Surr: BFB	96.8	15-244		%Rec	1	8/11/2023 2:37:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 2:37:03 PM
Toluene	ND	0.046		mg/Kg	1	8/11/2023 2:37:03 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/11/2023 2:37:03 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/11/2023 2:37:03 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/11/2023 2:37:03 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	7900	300		mg/Kg	100	8/14/2023 11:42:25 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.		

Page 3 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-08 2'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:20:00 AM

Lab ID: 2308474-004

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/11/2023 5:41:11 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/11/2023 5:41:11 PM
Surr: DNOP	107	69-147		%Rec	1	8/11/2023 5:41:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/11/2023 3:00:41 PM
Surr: BFB	99.9	15-244		%Rec	1	8/11/2023 3:00:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/11/2023 3:00:41 PM
Toluene	ND	0.048		mg/Kg	1	8/11/2023 3:00:41 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/11/2023 3:00:41 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/11/2023 3:00:41 PM
Surr: 4-Bromofluorobenzene	113	39.1-146		%Rec	1	8/11/2023 3:00:41 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	910	59		mg/Kg	20	8/12/2023 1:46:40 PM

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

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

Page 4 of 20

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2308474
Date Reported: 8/18/2023

CLIENT: Devon Energy

Client Sample ID: BH23-08 4'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 12:20:00 PM

Lab ID: 2308474-005

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/11/2023 5:52:09 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/11/2023 5:52:09 PM
Surr: DNOP	107	69-147		%Rec	1	8/11/2023 5:52:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/11/2023 3:24:22 PM
Surr: BFB	101	15-244		%Rec	1	8/11/2023 3:24:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 3:24:22 PM
Toluene	ND	0.047		mg/Kg	1	8/11/2023 3:24:22 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/11/2023 3:24:22 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/11/2023 3:24:22 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/11/2023 3:24:22 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	470	60		mg/Kg	20	8/12/2023 1:59:05 PM

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

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

Page 5 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-09 0'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:30:00 AM

Lab ID: 2308474-006

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	35	8.5		mg/Kg	1	8/11/2023 6:03:12 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	8/11/2023 6:03:12 PM
Surr: DNOP	106	69-147		%Rec	1	8/11/2023 6:03:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/11/2023 3:48:06 PM
Surr: BFB	97.9	15-244		%Rec	1	8/11/2023 3:48:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 3:48:06 PM
Toluene	ND	0.046		mg/Kg	1	8/11/2023 3:48:06 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/11/2023 3:48:06 PM
Xylenes, Total	ND	0.092		mg/Kg	1	8/11/2023 3:48:06 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/11/2023 3:48:06 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	9800	600		mg/Kg	200	8/14/2023 11:54:46 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.		

Page 6 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-09 2'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:35:00 AM

Lab ID: 2308474-007

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	8/11/2023 6:14:21 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/11/2023 6:14:21 PM
Surr: DNOP	109	69-147		%Rec	1	8/11/2023 6:14:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/11/2023 4:11:54 PM
Surr: BFB	101	15-244		%Rec	1	8/11/2023 4:11:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/11/2023 4:11:54 PM
Toluene	ND	0.048		mg/Kg	1	8/11/2023 4:11:54 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/11/2023 4:11:54 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/11/2023 4:11:54 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/11/2023 4:11:54 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	280	60		mg/Kg	20	8/12/2023 2:23:55 PM

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

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

Page 7 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-09 4'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 12:25:00 PM

Lab ID: 2308474-008

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/11/2023 6:25:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/11/2023 6:25:31 PM
Surr: DNOP	96.6	69-147		%Rec	1	8/11/2023 6:25:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/11/2023 4:35:37 PM
Surr: BFB	99.4	15-244		%Rec	1	8/11/2023 4:35:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	8/11/2023 4:35:37 PM
Toluene	ND	0.049		mg/Kg	1	8/11/2023 4:35:37 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/11/2023 4:35:37 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/11/2023 4:35:37 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/11/2023 4:35:37 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	740	60		mg/Kg	20	8/12/2023 2:36:19 PM

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

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

Page 8 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-10 0'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:30:00 AM

Lab ID: 2308474-009

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/11/2023 6:36:44 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/11/2023 6:36:44 PM
Surr: DNOP	83.1	69-147		%Rec	1	8/11/2023 6:36:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/11/2023 5:23:04 PM
Surr: BFB	98.8	15-244		%Rec	1	8/11/2023 5:23:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 5:23:04 PM
Toluene	ND	0.047		mg/Kg	1	8/11/2023 5:23:04 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/11/2023 5:23:04 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/11/2023 5:23:04 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/11/2023 5:23:04 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1000	60		mg/Kg	20	8/12/2023 2:48:44 PM

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

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

Page 9 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-10 2'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 10:40:00 AM

Lab ID: 2308474-010

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/11/2023 6:47:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/11/2023 6:47:56 PM
Surr: DNOP	100	69-147		%Rec	1	8/11/2023 6:47:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/11/2023 5:46:47 PM
Surr: BFB	97.7	15-244		%Rec	1	8/11/2023 5:46:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	8/11/2023 5:46:47 PM
Toluene	ND	0.049		mg/Kg	1	8/11/2023 5:46:47 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/11/2023 5:46:47 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/11/2023 5:46:47 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/11/2023 5:46:47 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	160	60		mg/Kg	20	8/12/2023 3:25:56 PM

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

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

Page 10 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-11 0'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 1:21:00 PM

Lab ID: 2308474-011

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/11/2023 6:59:07 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/11/2023 6:59:07 PM
Surr: DNOP	108	69-147		%Rec	1	8/11/2023 6:59:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/11/2023 6:10:25 PM
Surr: BFB	98.0	15-244		%Rec	1	8/11/2023 6:10:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/11/2023 6:10:25 PM
Toluene	ND	0.049		mg/Kg	1	8/11/2023 6:10:25 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/11/2023 6:10:25 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/11/2023 6:10:25 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/11/2023 6:10:25 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	7300	300		mg/Kg	100	8/15/2023 12:07:07 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.		

Page 11 of 20

Analytical Report

Lab Order 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-11 2'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 1:25:00 PM

Lab ID: 2308474-012

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/11/2023 7:10:15 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/11/2023 7:10:15 PM
Surr: DNOP	107	69-147		%Rec	1	8/11/2023 7:10:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/11/2023 6:34:02 PM
Surr: BFB	97.4	15-244		%Rec	1	8/11/2023 6:34:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 6:34:02 PM
Toluene	ND	0.047		mg/Kg	1	8/11/2023 6:34:02 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/11/2023 6:34:02 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/11/2023 6:34:02 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/11/2023 6:34:02 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	410	60		mg/Kg	20	8/12/2023 3:50:46 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.		

Page 12 of 20

CLIENT: Devon Energy

Client Sample ID: BH23-12 0'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 1:20:00 PM

Lab ID: 2308474-013

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/11/2023 7:21:18 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/11/2023 7:21:18 PM
Surr: DNOP	88.9	69-147		%Rec	1	8/11/2023 7:21:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/11/2023 6:57:39 PM
Surr: BFB	98.0	15-244		%Rec	1	8/11/2023 6:57:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/11/2023 6:57:39 PM
Toluene	ND	0.046		mg/Kg	1	8/11/2023 6:57:39 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/11/2023 6:57:39 PM
Xylenes, Total	ND	0.092		mg/Kg	1	8/11/2023 6:57:39 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/11/2023 6:57:39 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	14000	600		mg/Kg	200	8/15/2023 12:19:28 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.		

CLIENT: Devon Energy
Project: CTB 2 Arena Roja Unit 1
Lab ID: 2308474-014

Matrix: SOIL

Client Sample ID: BH23-12 2'
Collection Date: 8/7/2023 1:25:00 PM
Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/11/2023 7:32:20 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/11/2023 7:32:20 PM
Surr: DNOP	126	69-147		%Rec	1	8/11/2023 7:32:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/11/2023 7:21:16 PM
Surr: BFB	98.4	15-244		%Rec	1	8/11/2023 7:21:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/11/2023 7:21:16 PM
Toluene	ND	0.048		mg/Kg	1	8/11/2023 7:21:16 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/11/2023 7:21:16 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/11/2023 7:21:16 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/11/2023 7:21:16 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1200	60		mg/Kg	20	8/12/2023 4:15:35 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 2308474

Date Reported: 8/18/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-12 4'

Project: CTB 2 Arena Roja Unit 1

Collection Date: 8/7/2023 1:45:00 PM

Lab ID: 2308474-015

Matrix: SOIL

Received Date: 8/9/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/11/2023 7:43:18 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/11/2023 7:43:18 PM
Surr: DNOP	95.3	69-147		%Rec	1	8/11/2023 7:43:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/11/2023 7:44:51 PM
Surr: BFB	97.0	15-244		%Rec	1	8/11/2023 7:44:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/11/2023 7:44:51 PM
Toluene	ND	0.047		mg/Kg	1	8/11/2023 7:44:51 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/11/2023 7:44:51 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/11/2023 7:44:51 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/11/2023 7:44:51 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	2200	150		mg/Kg	50	8/15/2023 12:31:49 AM

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

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

Page 15 of 20

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308474

18-Aug-23

Client: Devon Energy

Project: CTB 2 Arena Roja Unit 1

Sample ID: MB-76818	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 76818	RunNo: 98907
Prep Date: 8/11/2023	Analysis Date: 8/11/2023	SeqNo: 3603933 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-76818	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 76818	RunNo: 98907
Prep Date: 8/11/2023	Analysis Date: 8/11/2023	SeqNo: 3603934 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	16	1.5 15.00 0 105 90 110

Sample ID: MB-76823	SampType: mblk	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 76823	RunNo: 98933
Prep Date: 8/11/2023	Analysis Date: 8/12/2023	SeqNo: 3604974 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-76823	SampType: lcs	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 76823	RunNo: 98933
Prep Date: 8/11/2023	Analysis Date: 8/12/2023	SeqNo: 3604975 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	15	1.5 15.00 0 98.7 90 110

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

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

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2308474
18-Aug-23

Client: Devon Energy
Project: CTB 2 Arena Roja Unit 1

Sample ID: LCS-76771	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76771	RunNo: 98859								
Prep Date: 8/9/2023	Analysis Date: 8/10/2023	SeqNo: 3602161	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	107	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: MB-76771	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76771	RunNo: 98859								
Prep Date: 8/9/2023	Analysis Date: 8/10/2023	SeqNo: 3602162	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		122	69	147			

Sample ID: MB-76807	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76807	RunNo: 98895								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3603704	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		111	69	147			

Sample ID: LCS-76807	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76807	RunNo: 98895								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3603706	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	65	10	50.00	0	129	61.9	130			
Surr: DNOP	6.0		5.000		120	69	147			

Sample ID: 2308474-003AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-08 0'	Batch ID: 76807	RunNo: 98895								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3605093	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.7	48.26	0	102	54.2	135			
Surr: DNOP	4.3		4.826		90.1	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308474

18-Aug-23

Client: Devon Energy

Project: CTB 2 Arena Roja Unit 1

Sample ID: 2308474-003AMSD		SampType: MSD			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: BH23-08 0'		Batch ID: 76807			RunNo: 98895					
Prep Date: 8/10/2023		Analysis Date: 8/11/2023			SeqNo: 3605094		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.3	46.38	0	97.9	54.2	135	7.92	29.2	
Surr: DNOP	4.2		4.638		89.5	69	147	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308474

18-Aug-23

Client: Devon Energy
Project: CTB 2 Arena Roja Unit 1

Sample ID: mb-76765	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76765			RunNo: 98928						
Prep Date: 8/9/2023	Analysis Date: 8/11/2023			SeqNo: 3604659		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	15	244			

Sample ID: mb-76799	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 76799			RunNo: 98928						
Prep Date: 8/10/2023	Analysis Date: 8/11/2023			SeqNo: 3604660		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	930		1000		93.4	15	244			

Sample ID: lcs-76765	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76765			RunNo: 98928						
Prep Date: 8/9/2023	Analysis Date: 8/11/2023			SeqNo: 3604682		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	88.1	70	130			
Surr: BFB	1900		1000		194	15	244			

Sample ID: lcs-76799	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 76799			RunNo: 98928						
Prep Date: 8/10/2023	Analysis Date: 8/11/2023			SeqNo: 3604683		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		191	15	244			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 19 of 20

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308474

18-Aug-23

Client: Devon Energy
Project: CTB 2 Arena Roja Unit 1

Sample ID: LCS-76765	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 76765			RunNo: 98928						
Prep Date: 8/9/2023	Analysis Date: 8/11/2023			SeqNo: 3604735	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	70	130			
Toluene	1.0	0.050	1.000	0	103	70	130			
Ethylbenzene	1.0	0.050	1.000	0	103	70	130			
Xylenes, Total	3.2	0.10	3.000	0	105	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	39.1	146			

Sample ID: LCS-76799	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 76799			RunNo: 98928						
Prep Date: 8/10/2023	Analysis Date: 8/11/2023			SeqNo: 3604736	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		109	39.1	146			

Sample ID: mb-76765	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 76765			RunNo: 98928						
Prep Date: 8/9/2023	Analysis Date: 8/11/2023			SeqNo: 3604737	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		111	39.1	146			

Sample ID: mb-76799	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 76799			RunNo: 98928						
Prep Date: 8/10/2023	Analysis Date: 8/11/2023			SeqNo: 3604738	Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		107	39.1	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



Hall Environmental Analysis Laboratory
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: 2308474

RcptNo: 1

Received By: Steve McQuiston 8/9/2023 7:35:00 AM

Completed By: Desiree Dominguez 8/9/2023 8:43:21 AM

Reviewed By: scm 08/09/23

[Signature]

[Signature]

Chain of Custody

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

2. How was the sample delivered? FedEx

Log In

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

4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐

5. Sample(s) in proper container(s)? Yes ☒ No ☐

6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐

7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐

8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐

9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☒

10. Were any sample containers received broken? Yes ☐ No ☒

11. Does paperwork match bottle labels? Yes ☒ No ☐

(Note discrepancies on chain of custody)

12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐

13. Is it clear what analyses were requested? Yes ☒ No ☐

14. Were all holding times able to be met? Yes ☒ No ☐

(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: *scm 8/9/23*

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Not Present	Morty		

Chain-of-Custody Record

Client: Devon / Vertex

Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other _____☐ EDD (Type)

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:	CTB #2
---------------	--------

Arena 2022 Unit # 1

Project #:

23E-02841

Project Manager:

Kent Stalligs

Sampler: SM

On Ice: ☒ Yes ☐ No

of Coolers:

Cooler Temp (including CF): $2.2 - 0 = 2.2$ ($^{\circ}\text{C}$)Container
Type and #Preservative
Type

HEAL No.

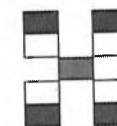
Date	Time	Matrix	Sample Name	Cooler Temp (Including CF): 2.2-0=2.2		
				Container Type and #	Preservative Type	HEAL No. 2308474
08.12.23	10:10	Soil	BH23-07 0'	42 Jan	Ice	-001
	10:25		BH23-09 2'			-002
	10:45		BH23-08 0'			-003
	10:20		BH23-08 2'			-004
	12:20		BH23-08 4'			-005
	10:30		BH23-09 0'			-006
	10:35		BH23-09 2'			-007
	12:25		BH23-09 4'			-008
	10:30		BH23-10 0'			-009
	10:40		BH23-10 2'			-010
	13:21		BH23-11 0'			-011
	13:25		BH23-11 2'			-012

Date: 9/18/23	Time: 830	Relinquished by: [Signature]
Date:	Time:	Relinquished by:

Date:	Time:	Relinquished by:
8/10/23	1900	Admiral

Received by:	Via:	Date	Time
<i>Amunir</i>		8/8/23	030

Received by:	Via:	Date	Time
SCM	FED EX COURIER	08/13	0735



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks:

marks: Direct bill to : Devon

W10#: 21161870

cc: smccarty@vertex.ca Pg 1 of 2

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

SCM 08/09/22



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

August 23, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

OrderNo.: 2308551

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 19 sample(s) on 8/10/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-12 6'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-001

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/11/2023 9:00:27 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/11/2023 9:00:27 PM
Surr: DNOP	111	69-147		%Rec	1	8/11/2023 9:00:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/12/2023 1:36:57 AM
Surr: BFB	91.7	15-244		%Rec	1	8/12/2023 1:36:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 1:36:57 AM
Toluene	ND	0.046		mg/Kg	1	8/12/2023 1:36:57 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/12/2023 1:36:57 AM
Xylenes, Total	ND	0.092		mg/Kg	1	8/12/2023 1:36:57 AM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/12/2023 1:36:57 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	950	60		mg/Kg	20	8/14/2023 9:38:55 PM

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

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

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-13 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 9:40:00 AM

Lab ID: 2308551-002

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/14/2023 2:14:47 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/14/2023 2:14:47 PM
Surr: DNOP	90.9	69-147		%Rec	1	8/14/2023 2:14:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 2:00:23 AM
Surr: BFB	92.3	15-244		%Rec	1	8/12/2023 2:00:23 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 2:00:23 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 2:00:23 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 2:00:23 AM
Xylenes, Total	ND	0.095		mg/Kg	1	8/12/2023 2:00:23 AM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	8/12/2023 2:00:23 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	2400	150		mg/Kg	50	8/15/2023 4:54:51 PM

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

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

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-13 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 9:49:00 AM

Lab ID: 2308551-003

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/14/2023 2:47:05 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/14/2023 2:47:05 PM
Surr: DNOP	104	69-147		%Rec	1	8/14/2023 2:47:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 2:23:48 AM
Surr: BFB	95.0	15-244		%Rec	1	8/12/2023 2:23:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 2:23:48 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 2:23:48 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 2:23:48 AM
Xylenes, Total	ND	0.094		mg/Kg	1	8/12/2023 2:23:48 AM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/12/2023 2:23:48 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	8/14/2023 10:03:37 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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-14 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 9:55:00 AM

Lab ID: 2308551-004

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	8/14/2023 2:58:01 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/14/2023 2:58:01 PM
Surr: DNOP	95.9	69-147		%Rec	1	8/14/2023 2:58:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2023 2:47:13 AM
Surr: BFB	94.3	15-244		%Rec	1	8/12/2023 2:47:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 2:47:13 AM
Toluene	ND	0.048		mg/Kg	1	8/12/2023 2:47:13 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2023 2:47:13 AM
Xylenes, Total	ND	0.096		mg/Kg	1	8/12/2023 2:47:13 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 2:47:13 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	230	60		mg/Kg	20	8/14/2023 10:15:58 PM

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

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

Page 4 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-14 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-005

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/14/2023 3:08:56 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/14/2023 3:08:56 PM
Surr: DNOP	102	69-147		%Rec	1	8/14/2023 3:08:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/12/2023 3:10:39 AM
Surr: BFB	93.6	15-244		%Rec	1	8/12/2023 3:10:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 3:10:39 AM
Toluene	ND	0.046		mg/Kg	1	8/12/2023 3:10:39 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/12/2023 3:10:39 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/12/2023 3:10:39 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 3:10:39 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	8/14/2023 10:28:19 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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-15 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 9:55:00 AM

Lab ID: 2308551-006

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/14/2023 3:19:51 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/14/2023 3:19:51 PM
Surr: DNOP	94.2	69-147		%Rec	1	8/14/2023 3:19:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 3:34:12 AM
Surr: BFB	93.8	15-244		%Rec	1	8/12/2023 3:34:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 3:34:12 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 3:34:12 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 3:34:12 AM
Xylenes, Total	ND	0.094		mg/Kg	1	8/12/2023 3:34:12 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/12/2023 3:34:12 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	5200	300		mg/Kg	100	8/15/2023 5:07:16 PM

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

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

Page 6 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-15 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-007

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/14/2023 3:30:45 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/14/2023 3:30:45 PM
Surr: DNOP	98.9	69-147		%Rec	1	8/14/2023 3:30:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/12/2023 3:57:42 AM
Surr: BFB	92.1	15-244		%Rec	1	8/12/2023 3:57:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 3:57:42 AM
Toluene	ND	0.046		mg/Kg	1	8/12/2023 3:57:42 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/12/2023 3:57:42 AM
Xylenes, Total	ND	0.092		mg/Kg	1	8/12/2023 3:57:42 AM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	8/12/2023 3:57:42 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	59		mg/Kg	20	8/14/2023 11:17:42 PM

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

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

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-16 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 9:45:00 AM

Lab ID: 2308551-008

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/14/2023 3:41:38 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/14/2023 3:41:38 PM
Surr: DNOP	91.4	69-147		%Rec	1	8/14/2023 3:41:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2023 4:21:14 AM
Surr: BFB	93.9	15-244		%Rec	1	8/12/2023 4:21:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 4:21:14 AM
Toluene	ND	0.048		mg/Kg	1	8/12/2023 4:21:14 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2023 4:21:14 AM
Xylenes, Total	ND	0.096		mg/Kg	1	8/12/2023 4:21:14 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 4:21:14 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	10000	600		mg/Kg	200	8/15/2023 5:44:29 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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-16 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-009

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	8/14/2023 3:52:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/14/2023 3:52:31 PM
Surr: DNOP	90.5	69-147		%Rec	1	8/14/2023 3:52:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 5:08:01 AM
Surr: BFB	93.8	15-244		%Rec	1	8/12/2023 5:08:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 5:08:01 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 5:08:01 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 5:08:01 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/12/2023 5:08:01 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 5:08:01 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	990	60		mg/Kg	20	8/15/2023 3:28:00 PM

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

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

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-16 4'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 10:54:00 AM

Lab ID: 2308551-010

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/14/2023 4:03:22 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/14/2023 4:03:22 PM
Surr: DNOP	93.8	69-147		%Rec	1	8/14/2023 4:03:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/12/2023 5:31:26 AM
Surr: BFB	94.1	15-244		%Rec	1	8/12/2023 5:31:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	8/12/2023 5:31:26 AM
Toluene	ND	0.050		mg/Kg	1	8/12/2023 5:31:26 AM
Ethylbenzene	ND	0.050		mg/Kg	1	8/12/2023 5:31:26 AM
Xylenes, Total	ND	0.099		mg/Kg	1	8/12/2023 5:31:26 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 5:31:26 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	580	60		mg/Kg	20	8/15/2023 3:40:25 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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-17 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 10:27:00 AM

Lab ID: 2308551-011

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	460	8.9		mg/Kg	1	8/14/2023 4:24:52 PM
Motor Oil Range Organics (MRO)	330	44		mg/Kg	1	8/14/2023 4:24:52 PM
Surr: DNOP	120	69-147		%Rec	1	8/14/2023 4:24:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2023 5:54:51 AM
Surr: BFB	90.8	15-244		%Rec	1	8/12/2023 5:54:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 5:54:51 AM
Toluene	ND	0.048		mg/Kg	1	8/12/2023 5:54:51 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2023 5:54:51 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/12/2023 5:54:51 AM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/12/2023 5:54:51 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	8000	300		mg/Kg	100	8/16/2023 10:32:32 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.		

Page 11 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-17 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 10:31:00 AM

Lab ID: 2308551-012

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	2500	90		mg/Kg	10	8/15/2023 11:05:02 AM
Motor Oil Range Organics (MRO)	640	450		mg/Kg	10	8/15/2023 11:05:02 AM
Surr: DNOP	0	69-147	S	%Rec	10	8/15/2023 11:05:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/12/2023 6:18:14 AM
Surr: BFB	93.2	15-244		%Rec	1	8/12/2023 6:18:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 6:18:14 AM
Toluene	ND	0.046		mg/Kg	1	8/12/2023 6:18:14 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/12/2023 6:18:14 AM
Xylenes, Total	ND	0.092		mg/Kg	1	8/12/2023 6:18:14 AM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/12/2023 6:18:14 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	230	60		mg/Kg	20	8/15/2023 4:05:13 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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-17 4'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 10:59:00 AM

Lab ID: 2308551-013

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	10	9.9		mg/Kg	1	8/14/2023 4:46:35 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/14/2023 4:46:35 PM
Surr: DNOP	97.4	69-147		%Rec	1	8/14/2023 4:46:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/12/2023 6:41:36 AM
Surr: BFB	93.3	15-244		%Rec	1	8/12/2023 6:41:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 6:41:36 AM
Toluene	ND	0.049		mg/Kg	1	8/12/2023 6:41:36 AM
Ethylbenzene	ND	0.049		mg/Kg	1	8/12/2023 6:41:36 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/12/2023 6:41:36 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 6:41:36 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	290	60		mg/Kg	20	8/15/2023 4:17:37 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 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-18 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 12:05:00 PM

Lab ID: 2308551-014

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/14/2023 4:57:24 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/14/2023 4:57:24 PM
Surr: DNOP	94.6	69-147		%Rec	1	8/14/2023 4:57:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 7:04:57 AM
Surr: BFB	94.5	15-244		%Rec	1	8/12/2023 7:04:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 7:04:57 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 7:04:57 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 7:04:57 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/12/2023 7:04:57 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/12/2023 7:04:57 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	5100	300		mg/Kg	100	8/17/2023 5:56:08 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.		

Page 14 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-18 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-015

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/14/2023 5:08:13 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/14/2023 5:08:13 PM
Surr: DNOP	97.8	69-147		%Rec	1	8/14/2023 5:08:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 7:28:26 AM
Surr: BFB	93.4	15-244		%Rec	1	8/12/2023 7:28:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	8/12/2023 7:28:26 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 7:28:26 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 7:28:26 AM
Xylenes, Total	ND	0.094		mg/Kg	1	8/12/2023 7:28:26 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 7:28:26 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	190	60		mg/Kg	20	8/16/2023 1:26:17 PM

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

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

Page 15 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-19 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

Collection Date: 8/8/2023 12:15:00 PM

Lab ID: 2308551-016

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	8/14/2023 5:19:01 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/14/2023 5:19:01 PM
Surr: DNOP	91.1	69-147		%Rec	1	8/14/2023 5:19:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 7:52:00 AM
Surr: BFB	93.5	15-244		%Rec	1	8/12/2023 7:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 7:52:00 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 7:52:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 7:52:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	8/12/2023 7:52:00 AM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/12/2023 7:52:00 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	7500	300		mg/Kg	100	8/17/2023 6:08:32 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.		

Page 16 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-19 2'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-017

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	8/14/2023 5:29:47 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/14/2023 5:29:47 PM
Surr: DNOP	106	69-147		%Rec	1	8/14/2023 5:29:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/12/2023 8:15:29 AM
Surr: BFB	93.8	15-244		%Rec	1	8/12/2023 8:15:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 8:15:29 AM
Toluene	ND	0.048		mg/Kg	1	8/12/2023 8:15:29 AM
Ethylbenzene	ND	0.048		mg/Kg	1	8/12/2023 8:15:29 AM
Xylenes, Total	ND	0.097		mg/Kg	1	8/12/2023 8:15:29 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/12/2023 8:15:29 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/16/2023 1:51:05 PM

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

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

Page 17 of 27

Analytical Report

Lab Order 2308551

Date Reported: 8/23/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-20 0'

Project: Arena Roja Unit 1 Area Roja Fed Unit 2

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

Lab ID: 2308551-018

Matrix: SOIL

Received Date: 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/14/2023 5:40:33 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/14/2023 5:40:33 PM
Surr: DNOP	109	69-147		%Rec	1	8/14/2023 5:40:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/12/2023 8:38:54 AM
Surr: BFB	95.0	15-244		%Rec	1	8/12/2023 8:38:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	8/12/2023 8:38:54 AM
Toluene	ND	0.047		mg/Kg	1	8/12/2023 8:38:54 AM
Ethylbenzene	ND	0.047		mg/Kg	1	8/12/2023 8:38:54 AM
Xylenes, Total	ND	0.094		mg/Kg	1	8/12/2023 8:38:54 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/12/2023 8:38:54 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/16/2023 2:03:30 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.		

Page 18 of 27

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**Lab Order **2308551**Date Reported: **8/23/2023****CLIENT:** Vertex Resources Services, Inc.**Client Sample ID:** BH23-20 2'**Project:** Arena Roja Unit 1 Area Roja Fed Unit 2**Collection Date:** 8/8/2023 12:53:00 PM**Lab ID:** 2308551-019**Matrix:** SOIL**Received Date:** 8/10/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/14/2023 5:51:27 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/14/2023 5:51:27 PM
Surr: DNOP	106	69-147		%Rec	1	8/14/2023 5:51:27 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/16/2023 2:15:55 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: JR
Benzene	ND	0.025		mg/Kg	1	8/11/2023 4:15:17 PM
Toluene	ND	0.050		mg/Kg	1	8/11/2023 4:15:17 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/11/2023 4:15:17 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/11/2023 4:15:17 PM
Surr: 1,2-Dichloroethane-d4	94.1	64.8-147		%Rec	1	8/11/2023 4:15:17 PM
Surr: 4-Bromofluorobenzene	97.3	62.1-144		%Rec	1	8/11/2023 4:15:17 PM
Surr: Dibromofluoromethane	110	73-145		%Rec	1	8/11/2023 4:15:17 PM
Surr: Toluene-d8	93.0	70-130		%Rec	1	8/11/2023 4:15:17 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: JR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/11/2023 4:15:17 PM
Surr: BFB	108	70-130		%Rec	1	8/11/2023 4:15:17 PM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.**Project:** Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: MB-76850	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 76850		RunNo: 98937							
Prep Date: 8/14/2023	Analysis Date: 8/14/2023		SeqNo: 3606004	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76850	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 76850		RunNo: 98937							
Prep Date: 8/14/2023	Analysis Date: 8/14/2023		SeqNo: 3606005	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-76863	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 76863		RunNo: 98981							
Prep Date: 8/15/2023	Analysis Date: 8/15/2023		SeqNo: 3608089	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76863	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 76863		RunNo: 98981							
Prep Date: 8/15/2023	Analysis Date: 8/15/2023		SeqNo: 3608090	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	98.9	90	110			

Sample ID: MB-76901	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 76901		RunNo: 99040							
Prep Date: 8/16/2023	Analysis Date: 8/16/2023		SeqNo: 3610084	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76901	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 76901		RunNo: 99040							
Prep Date: 8/16/2023	Analysis Date: 8/16/2023		SeqNo: 3610085	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 20 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: MB-76807	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76807	RunNo: 98895								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3603704 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		111	69	147			

Sample ID: LCS-76807	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76807	RunNo: 98895								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3603706 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	65	10	50.00	0	129	61.9	130			
Surr: DNOP	6.0		5.000		120	69	147			

Sample ID: LCS-76810	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76810	RunNo: 98932								
Prep Date: 8/11/2023	Analysis Date: 8/14/2023	SeqNo: 3604843 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	110	61.9	130			
Surr: DNOP	4.4		5.000		89.0	69	147			

Sample ID: MB-76810	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76810	RunNo: 98932								
Prep Date: 8/11/2023	Analysis Date: 8/14/2023	SeqNo: 3604845 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		86.8	69	147			

Sample ID: 2308551-002AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-13 0'	Batch ID: 76810	RunNo: 98932								
Prep Date: 8/11/2023	Analysis Date: 8/14/2023	SeqNo: 3606345 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	9.6	47.80	0	115	54.2	135			
Surr: DNOP	5.1		4.780		108	69	147			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 21 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: 2308551-002AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-13 0'	Batch ID: 76810	RunNo: 98932								
Prep Date: 8/11/2023	Analysis Date: 8/14/2023	SeqNo: 3606346 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	9.5	47.53	0	114	54.2	135	2.20	29.2	
Surr: DNOP	4.4		4.753		91.9	69	147	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 22 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: mb-76799	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76799	RunNo: 98928								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604660 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	930		1000		93.4	15	244			

Sample ID: lcs-76799	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76799	RunNo: 98928								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604683 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.9	70	130			
Surr: BFB	1900		1000		191	15	244			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 23 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: LCS-76799	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76799	RunNo: 98928								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604736 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.4	70	130			
Toluene	0.97	0.050	1.000	0	97.3	70	130			
Ethylbenzene	0.97	0.050	1.000	0	97.3	70	130			
Xylenes, Total	3.0	0.10	3.000	0	98.5	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	39.1	146			

Sample ID: mb-76799	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 76799	RunNo: 98928								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604738 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	39.1	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 24 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.**Project:** Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: 2308551-019ams	SampType: MS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BH23-20 2'	Batch ID: 76803	RunNo: 98923								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604107	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9990	0	110	75.8	123			
Toluene	0.92	0.050	0.9990	0	92.5	68.3	130			
Ethylbenzene	0.97	0.050	0.9990	0	97.1	76.6	132			
Xylenes, Total	2.9	0.10	2.997	0	98.2	74.7	132			
Surr: 1,2-Dichloroethane-d4	0.50		0.4995		101	64.8	147			
Surr: 4-Bromofluorobenzene	0.50		0.4995		100	62.1	144			
Surr: Dibromofluoromethane	0.57		0.4995		113	73	145			
Surr: Toluene-d8	0.46		0.4995		91.7	70	130			

Sample ID: 2308551-019amsd	SampType: MSD4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BH23-20 2'	Batch ID: 76803	RunNo: 98923								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604108	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9950	0	108	75.8	123	2.11	20	
Toluene	0.94	0.050	0.9950	0	94.9	68.3	130	2.15	20	
Ethylbenzene	1.0	0.050	0.9950	0	101	76.6	132	3.21	20	
Xylenes, Total	3.1	0.10	2.985	0	103	74.7	132	4.30	20	
Surr: 1,2-Dichloroethane-d4	0.47		0.4975		94.8	64.8	147	0	0	
Surr: 4-Bromofluorobenzene	0.50		0.4975		99.8	62.1	144	0	0	
Surr: Dibromofluoromethane	0.54		0.4975		109	73	145	0	0	
Surr: Toluene-d8	0.45		0.4975		90.6	70	130	0	0	

Sample ID: mb-76803	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 76803	RunNo: 98923								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604113	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	0.49		0.5000		97.5	64.8	147			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	62.1	144			
Surr: Dibromofluoromethane	0.53		0.5000		106	73	145			
Surr: Toluene-d8	0.46		0.5000		92.1	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 25 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: lcs-76803	SampType: LCS	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: LCSS	Batch ID: 76803	RunNo: 98923								
Prep Date: 8/10/2023	Analysis Date: 8/11/2023	SeqNo: 3604196	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	91.0	70	130			
Toluene	0.80	0.050	1.000	0	79.6	70	130			
Ethylbenzene	0.79	0.050	1.000	0	79.4	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.6	64.8	147			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.8	62.1	144			
Surr: Dibromofluoromethane	0.54		0.5000		108	73	145			
Surr: Toluene-d8	0.47		0.5000		93.5	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

Page 26 of 27

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308551

23-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1 Area Roja Fed Unit 2 CTB

Sample ID: lcs-76803	SampType: LCS		TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID: LCSS	Batch ID: 76803		RunNo: 98923							
Prep Date: 8/10/2023	Analysis Date: 8/11/2023		SeqNo: 3604125		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	85.0	70	130			
Surr: BFB	540		500.0		109	70	130			

Sample ID: mb-76803	SampType: MBLK		TestCode: EPA Method 8015D Mod: Gasoline Range							
Client ID: PBS	Batch ID: 76803		RunNo: 98923							
Prep Date: 8/10/2023	Analysis Date: 8/11/2023		SeqNo: 3604126		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	520		500.0		105	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 27 of 27



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: 2308551

RcptNo: 1

Received By: Juan Rojas 8/10/2023 7:15:00 AM

Completed By: Tracy Casarrubias 8/10/2023 7:39:19 AM

Reviewed By: *[Signature]* 8/10/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°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: *ju 8/10/23*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC- TMC 8/10/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes	Morty		

Chain-of-Custody Record

Client: Vertex/Devon

Mailing Address: On file

Phone #: /

email or Fax#: /

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other /

☐ EDD (Type) /

Turn-Around Time:
☒ Standard ☒ Rush 5 Day

Project Name: Arena Roja Unit 1 (Arena Roja Fed Unit 2 CTR)

Project #: 23E-02841

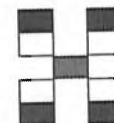
Project Manager: Kent Stallings

Sampler: SM

On Ice: ☒ Yes ☐ No

of Coolers: 1 Marty

Cooler Temp (including CF): 6.3-6.2-6.1 (°C)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Ch F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8/8/23	11:11	Soil	BH23-12 6"	4 oz jar	Ice	001	X	X								
	9:40		BH23-13 0"			002										
	9:49		BH23-13 2"			003										
	9:55		BH23-14 0"			004										
	10:00		BH23-14 2"			005										
	9:55		BH23-15 0"			006										
	10:00		BH23-15 2"			007										
	9:45		BH23-16 0"			008										
	9:50		BH23-16 2"			009										
	10:54		BH23-16 4"			010										
	10:27		BH23-17 0"			011										
	10:31		BH23-17 2"			012										

Received by: Amunio Via: / Date: 8/9/23 Time: 9:45

Received by: Amunio Via: / Date: 8/10/23 Time: 7:45

Remarks: Direct bill to Devon
w/o #:
Kstallings@vertex.ca
C.C. Smccarty@Vertex.ca

Chain-of-Custody Record

Client: Vertex/Devon

Mailing Address: On file

Phone #: _____

email or Fax#: _____

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other _____

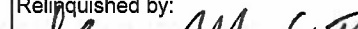

☐ EDD (Type) _____



Turn-Around Time:	
<input checked="" type="checkbox"/> Standard	<input checked="" type="checkbox"/> Rush <i>5 Day</i>
Project Name:	
<i>Arena Roja Unit 1 (Arena Roja Fed Unit 2 CTR)</i>	
Project #:	
<i>23E-02841</i>	
Project Manager:	
<i>Stallings, Kent</i>	
Sampler: <i>SM</i>	
On Ice:	<input type="checkbox"/> Yes <input type="checkbox"/> No
# of Coolers:	<i>1</i> <i>morley</i>
Cooler Temp (including CF): <i>0.3 - 0.2 = 0.1</i> (°C)	

Date	Time	Matrix	Sample Name
8/8/23	10:59	Soi	BH23-17 4'
	12:05		BH23-18 2'
	12:10		BH23-18 2'
	12:15		BH23-19 0'
	12:20		BH23-19 2'
	12:40		BH23-20 0'
	12:53		BH23-20 2'

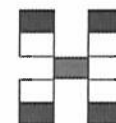
Container Type and #	Preservative Type	HEAL No.
4oz jar	Ice	2308551
		013
		014
		015
		016
		017
		018
		019

[illegible]

Date: 9/13	Time: 9:45	Relinquished by: 
Date: 9/13	Time: 1900	Relinquished by: 

Received by:	Via:	Date	Time
		8/9/23	945
Received by:	Via:	Date	Time
		8/10/23	7:11

Remarks: Direct bill to Devon
w/o #:
KStallings@vertex.ca
C.C. Smearth@vertex.ca



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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



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

August 25, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Arena Roja Unit 1

OrderNo.: 2308968

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 8/17/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-21 0'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 1:26:00 PM

Lab ID: 2308968-001

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	8/18/2023 6:46:45 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/18/2023 6:46:45 PM
Surr: DNOP	84.6	69-147		%Rec	1	8/18/2023 6:46:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 11:36:45 AM
Surr: BFB	97.0	15-244		%Rec	1	8/21/2023 11:36:45 AM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 11:36:45 AM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 11:36:45 AM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 11:36:45 AM
Xylenes, Total	ND	0.093		mg/Kg	1	8/21/2023 11:36:45 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/21/2023 11:36:45 AM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 4:04:01 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.		

Page 1 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-21 2'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 1:32:00 PM

Lab ID: 2308968-002

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/18/2023 7:10:47 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/18/2023 7:10:47 PM
Surr: DNOP	86.9	69-147		%Rec	1	8/18/2023 7:10:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 12:00:13 PM
Surr: BFB	96.0	15-244		%Rec	1	8/21/2023 12:00:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 12:00:13 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 12:00:13 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 12:00:13 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/21/2023 12:00:13 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/21/2023 12:00:13 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	70	60		mg/Kg	20	8/21/2023 4:16:26 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.		

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-22 0'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 1:12:00 PM

Lab ID: 2308968-003

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	8/18/2023 7:34:48 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	8/18/2023 7:34:48 PM
Surr: DNOP	89.1	69-147		%Rec	1	8/18/2023 7:34:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 12:23:45 PM
Surr: BFB	94.3	15-244		%Rec	1	8/21/2023 12:23:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 12:23:45 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 12:23:45 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 12:23:45 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/21/2023 12:23:45 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/21/2023 12:23:45 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 4:28:50 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.		

Page 3 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-22 2'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 1:19:00 PM

Lab ID: 2308968-004

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/18/2023 7:58:46 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/18/2023 7:58:46 PM
Surr: DNOP	87.5	69-147		%Rec	1	8/18/2023 7:58:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 12:47:18 PM
Surr: BFB	97.0	15-244		%Rec	1	8/21/2023 12:47:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 12:47:18 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 12:47:18 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 12:47:18 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/21/2023 12:47:18 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/21/2023 12:47:18 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	190	60		mg/Kg	20	8/21/2023 4:41:14 PM

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

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

Page 4 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-23 0'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 12:57:00 PM

Lab ID: 2308968-005

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	8/18/2023 8:22:45 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	8/18/2023 8:22:45 PM
Surr: DNOP	90.2	69-147		%Rec	1	8/18/2023 8:22:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 1:10:52 PM
Surr: BFB	94.0	15-244		%Rec	1	8/21/2023 1:10:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 1:10:52 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 1:10:52 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 1:10:52 PM
Xylenes, Total	ND	0.091		mg/Kg	1	8/21/2023 1:10:52 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/21/2023 1:10:52 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 4:53:39 PM

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

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

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-23 2'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 1:05:00 PM

Lab ID: 2308968-006

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	8/18/2023 8:46:46 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/18/2023 8:46:46 PM
Surr: DNOP	89.0	69-147		%Rec	1	8/18/2023 8:46:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/21/2023 1:34:27 PM
Surr: BFB	94.9	15-244		%Rec	1	8/21/2023 1:34:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/21/2023 1:34:27 PM
Toluene	ND	0.049		mg/Kg	1	8/21/2023 1:34:27 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/21/2023 1:34:27 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/21/2023 1:34:27 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	8/21/2023 1:34:27 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	500	60		mg/Kg	20	8/21/2023 5:06:04 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.		

Page 6 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-24 0'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 12:38:00 PM

Lab ID: 2308968-007

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	8/18/2023 9:10:45 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/18/2023 9:10:45 PM
Surr: DNOP	89.8	69-147		%Rec	1	8/18/2023 9:10:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/21/2023 1:58:06 PM
Surr: BFB	95.4	15-244		%Rec	1	8/21/2023 1:58:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/21/2023 1:58:06 PM
Toluene	ND	0.047		mg/Kg	1	8/21/2023 1:58:06 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/21/2023 1:58:06 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/21/2023 1:58:06 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	8/21/2023 1:58:06 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 5:18:28 PM

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

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

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-24 2'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 12:42:00 PM

Lab ID: 2308968-008

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/18/2023 9:34:45 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/18/2023 9:34:45 PM
Surr: DNOP	89.9	69-147		%Rec	1	8/18/2023 9:34:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 2:21:44 PM
Surr: BFB	97.9	15-244		%Rec	1	8/21/2023 2:21:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 2:21:44 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 2:21:44 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 2:21:44 PM
Xylenes, Total	ND	0.092		mg/Kg	1	8/21/2023 2:21:44 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/21/2023 2:21:44 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	460	60		mg/Kg	20	8/21/2023 5:30:53 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.		

Page 8 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-25 0'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 12:26:00 PM

Lab ID: 2308968-009

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/18/2023 9:58:46 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/18/2023 9:58:46 PM
Surr: DNOP	93.6	69-147		%Rec	1	8/18/2023 9:58:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/21/2023 2:45:19 PM
Surr: BFB	97.2	15-244		%Rec	1	8/21/2023 2:45:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/21/2023 2:45:19 PM
Toluene	ND	0.048		mg/Kg	1	8/21/2023 2:45:19 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/21/2023 2:45:19 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/21/2023 2:45:19 PM
Surr: 4-Bromofluorobenzene	112	39.1-146		%Rec	1	8/21/2023 2:45:19 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	5600	300		mg/Kg	100	8/22/2023 9:42:21 AM

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

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

Page 9 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-25 2'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 12:26:00 PM

Lab ID: 2308968-010

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	8/18/2023 10:22:41 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/18/2023 10:22:41 PM
Surr: DNOP	89.8	69-147		%Rec	1	8/18/2023 10:22:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/21/2023 3:08:58 PM
Surr: BFB	98.4	15-244		%Rec	1	8/21/2023 3:08:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/21/2023 3:08:58 PM
Toluene	ND	0.049		mg/Kg	1	8/21/2023 3:08:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/21/2023 3:08:58 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/21/2023 3:08:58 PM
Surr: 4-Bromofluorobenzene	113	39.1-146		%Rec	1	8/21/2023 3:08:58 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	63	60		mg/Kg	20	8/21/2023 6:45:20 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.		

Page 10 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-26 0'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 3:19:00 PM

Lab ID: 2308968-011

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/18/2023 11:10:34 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/18/2023 11:10:34 PM
Surr: DNOP	91.9	69-147		%Rec	1	8/18/2023 11:10:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/21/2023 3:56:15 PM
Surr: BFB	97.9	15-244		%Rec	1	8/21/2023 3:56:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/21/2023 3:56:15 PM
Toluene	ND	0.048		mg/Kg	1	8/21/2023 3:56:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/21/2023 3:56:15 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/21/2023 3:56:15 PM
Surr: 4-Bromofluorobenzene	113	39.1-146		%Rec	1	8/21/2023 3:56:15 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	120	60		mg/Kg	20	8/21/2023 6:57:44 PM

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

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

Page 11 of 16

Analytical Report

Lab Order 2308968

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-26 2'

Project: Arena Roja Unit 1

Collection Date: 8/14/2023 3:22:00 PM

Lab ID: 2308968-012

Matrix: SOIL

Received Date: 8/17/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/18/2023 11:34:33 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/18/2023 11:34:33 PM
Surr: DNOP	95.2	69-147		%Rec	1	8/18/2023 11:34:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/21/2023 4:19:55 PM
Surr: BFB	102	15-244		%Rec	1	8/21/2023 4:19:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/21/2023 4:19:55 PM
Toluene	ND	0.047		mg/Kg	1	8/21/2023 4:19:55 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/21/2023 4:19:55 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/21/2023 4:19:55 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/21/2023 4:19:55 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 7:10:09 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.		

Page 12 of 16

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308968

25-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1

Sample ID: MB-76966	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 76966	RunNo: 99107
Prep Date: 8/21/2023	Analysis Date: 8/21/2023	SeqNo: 3613352 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-76966	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 76966	RunNo: 99107
Prep Date: 8/21/2023	Analysis Date: 8/21/2023	SeqNo: 3613353 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 94.8 90 110

Sample ID: MB-76967	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBS	Batch ID: 76967	RunNo: 99107
Prep Date: 8/21/2023	Analysis Date: 8/21/2023	SeqNo: 3613354 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	ND	1.5

Sample ID: LCS-76967	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSS	Batch ID: 76967	RunNo: 99107
Prep Date: 8/21/2023	Analysis Date: 8/21/2023	SeqNo: 3613355 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Chloride	14	1.5 15.00 0 94.7 90 110

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

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

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308968

25-Aug-23

Client: Vertex Resources Services, Inc.**Project:** Arena Roja Unit 1

Sample ID: MB-76932	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 76932		RunNo: 99076							
Prep Date: 8/17/2023	Analysis Date: 8/18/2023		SeqNo: 3611404		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.4		10.00		84.1	69	147			

Sample ID: LCS-76932	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 76932		RunNo: 99076							
Prep Date: 8/17/2023	Analysis Date: 8/18/2023		SeqNo: 3611405		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.8		5.000		75.1	69	147			

Sample ID: MB-76947	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 76947		RunNo: 99076							
Prep Date: 8/18/2023	Analysis Date: 8/18/2023		SeqNo: 3612170		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	8.0		10.00		79.7	69	147			

Sample ID: LCS-76947	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 76947		RunNo: 99076							
Prep Date: 8/18/2023	Analysis Date: 8/18/2023		SeqNo: 3612171		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.8	61.9	130			
Surr: DNOP	3.8		5.000		76.3	69	147			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 14 of 16

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308968

25-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1

Sample ID: ics-76939	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3612471		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.9	70	130			
Surr: BFB	1900		1000		194	15	244			

Sample ID: mb-76939	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3612472		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		96.9	15	244			

Sample ID: 2308968-001ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH23-21 0'	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3612976		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.7	23.32	0	82.9	70	130			
Surr: BFB	1800		932.8		197	15	244			

Sample ID: 2308968-001amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: BH23-21 0'	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3612977		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.6	23.21	0	82.0	70	130	1.44	20	
Surr: BFB	1800		928.5		195	15	244	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 15 of 16

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308968

25-Aug-23

Client: Vertex Resources Services, Inc.**Project:** Arena Roja Unit 1

Sample ID: LCS-76939	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3612483		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	88.2	70	130			
Toluene	0.90	0.050	1.000	0	89.7	70	130			
Ethylbenzene	0.91	0.050	1.000	0	91.3	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.5	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	39.1	146			

Sample ID: mb-76939	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3612484		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		113	39.1	146			

Sample ID: 2308968-002ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH23-21 2'	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3613028		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.023	0.9259	0	101	70	130			
Toluene	0.95	0.046	0.9259	0	102	70	130			
Ethylbenzene	0.97	0.046	0.9259	0	105	70	130			
Xylenes, Total	2.9	0.093	2.778	0	106	70	130			
Surr: 4-Bromofluorobenzene	1.1		0.9259		115	39.1	146			

Sample ID: 2308968-002amsd	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH23-21 2'	Batch ID: 76939		RunNo: 99112							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3613029		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.023	0.9251	0	101	70	130	0.756	20	
Toluene	0.94	0.046	0.9251	0	101	70	130	1.09	20	
Ethylbenzene	0.96	0.046	0.9251	0	103	70	130	1.29	20	
Xylenes, Total	2.9	0.093	2.775	0	104	70	130	1.97	20	
Surr: 4-Bromofluorobenzene	1.1		0.9251		115	39.1	146	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 16 of 16



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: 2308968

RcptNo: 1

Received By: Tracy Casarrubias 8/17/2023 7:40:00 AM

Completed By: Tracy Casarrubias 8/17/2023 8:49:22 AM

Reviewed By: SCM 08/17/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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: 1
(<2 or >12 unless noted)
Adjusted? 1
Checked by: JW 8/17/23

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC- TMC 8/17/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Vertex / Devon

Mailing Address: On file

Phone #: _____

email or Fax#: _____

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standard ☒ Rush 5 DayProject Name: (Arena Roja Unit 2 CTB)

Arena Roja Unit 1

Project #:

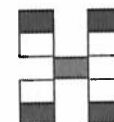
23E-02841

Project Manager:

Kent Stallings

Sampler: Deusavan CostaOn Ice: ☒ Yes ☐ No Yogi# of Coolers: 1Cooler Temp (including CF): 3.4-0-3.4 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
8.14.23	13:26	Soil	BH23-21 0'	Yorjar	Ice	001
	13:32		BH23-21 2'			002
	13:12		BH23-22 0'			003
	13:19		BH23-22 2'			004
	12:57		BH23-23 0'			005
	13:05		BH23-23 2'			006
	12:38		BH23-24 0'			007
	12:42		BH23-24 2'			008
	12:26		BH23-25 0'			009
	12:26		BH23-25 2'			010
	15:19		BH23-26 0'			011
	5:22		BH23-26 2'			012

Date: 8/16/23 Time: 9:15 Relinquished by: [Signature]Date: 8/16/23 Time: 19:00 Relinquished by: [Signature]Received by: _____ Via: _____ Date: 8/16/23 Time: 9:15Received by: _____ Via: curr Date: 8/17/23 Time: 7:40

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

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

Remarks: Direct bill: Devon w/o # 221161870

CC KStallings@vertex-ca
S.Mccarty@vertex-ca

pg. 1 of 1



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

August 25, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL: (505) 506-0040

FAX:

RE: Arena Roja Unit 1

OrderNo.: 2308A32

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 10 sample(s) on 8/18/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-27 0'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 10:33:00 AM

Lab ID: 2308A32-001

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	8/22/2023 7:49:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/22/2023 7:49:28 PM
Surr: DNOP	99.2	69-147		%Rec	1	8/22/2023 7:49:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 7:58:00 PM
Surr: BFB	95.5	15-244		%Rec	1	8/21/2023 7:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/21/2023 7:58:00 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 7:58:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 7:58:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/21/2023 7:58:00 PM
Surr: 4-Bromofluorobenzene	91.7	39.1-146		%Rec	1	8/21/2023 7:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	3900	150		mg/Kg	50	8/22/2023 9:54:46 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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-27 2'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 10:40:00 AM

Lab ID: 2308A32-002

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	8/22/2023 8:00:39 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/22/2023 8:00:39 PM
Surr: DNOP	116	69-147		%Rec	1	8/22/2023 8:00:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/21/2023 8:19:00 PM
Surr: BFB	97.1	15-244		%Rec	1	8/21/2023 8:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/21/2023 8:19:00 PM
Toluene	ND	0.048		mg/Kg	1	8/21/2023 8:19:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/21/2023 8:19:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/21/2023 8:19:00 PM
Surr: 4-Bromofluorobenzene	91.2	39.1-146		%Rec	1	8/21/2023 8:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	140	60		mg/Kg	20	8/21/2023 9:14:12 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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-28 0'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 10:49:00 AM

Lab ID: 2308A32-003

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	1100	20		mg/Kg	2	8/22/2023 7:27:09 PM
Motor Oil Range Organics (MRO)	ND	98	D	mg/Kg	2	8/22/2023 7:27:09 PM
Surr: DNOP	110	69-147		%Rec	2	8/22/2023 7:27:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/21/2023 9:24:00 PM
Surr: BFB	101	15-244		%Rec	1	8/21/2023 9:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/21/2023 9:24:00 PM
Toluene	ND	0.049		mg/Kg	1	8/21/2023 9:24:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/21/2023 9:24:00 PM
Xylenes, Total	0.20	0.098		mg/Kg	1	8/21/2023 9:24:00 PM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	8/21/2023 9:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	1100	60		mg/Kg	20	8/21/2023 9:26:36 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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-28 2'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 10:54:00 AM

Lab ID: 2308A32-004

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	8/22/2023 12:26:37 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/22/2023 12:26:37 AM
Surr: DNOP	121	69-147		%Rec	1	8/22/2023 12:26:37 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 9:46:00 PM
Surr: BFB	96.0	15-244		%Rec	1	8/21/2023 9:46:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/21/2023 9:46:00 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 9:46:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 9:46:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	8/21/2023 9:46:00 PM
Surr: 4-Bromofluorobenzene	91.0	39.1-146		%Rec	1	8/21/2023 9:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	110	60		mg/Kg	20	8/21/2023 9:39:01 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.		

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**Lab Order **2308A32**Date Reported: **8/25/2023****CLIENT:** Vertex Resources Services, Inc.**Client Sample ID:** BH23-29 0'**Project:** Arena Roja Unit 1**Collection Date:** 8/16/2023 11:57:00 AM**Lab ID:** 2308A32-005**Matrix:** SOIL**Received Date:** 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	8/22/2023 12:47:27 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/22/2023 12:47:27 AM
Surr: DNOP	108	69-147		%Rec	1	8/22/2023 12:47:27 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/21/2023 10:08:00 PM
Surr: BFB	96.8	15-244		%Rec	1	8/21/2023 10:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/21/2023 10:08:00 PM
Toluene	ND	0.048		mg/Kg	1	8/21/2023 10:08:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/21/2023 10:08:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/21/2023 10:08:00 PM
Surr: 4-Bromofluorobenzene	91.1	39.1-146		%Rec	1	8/21/2023 10:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	580	60		mg/Kg	20	8/21/2023 9:51:25 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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-29 2'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 12:02:00 PM

Lab ID: 2308A32-006

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/22/2023 1:09:02 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/22/2023 1:09:02 AM
Surr: DNOP	112	69-147		%Rec	1	8/22/2023 1:09:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 10:30:00 PM
Surr: BFB	95.3	15-244		%Rec	1	8/21/2023 10:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/21/2023 10:30:00 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 10:30:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 10:30:00 PM
Xylenes, Total	ND	0.091		mg/Kg	1	8/21/2023 10:30:00 PM
Surr: 4-Bromofluorobenzene	90.5	39.1-146		%Rec	1	8/21/2023 10:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 10:03:49 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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-30 0'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 12:09:00 PM

Lab ID: 2308A32-007

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	8/22/2023 8:11:54 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/22/2023 8:11:54 PM
Surr: DNOP	121	69-147		%Rec	1	8/22/2023 8:11:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 10:51:00 PM
Surr: BFB	95.8	15-244		%Rec	1	8/21/2023 10:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/21/2023 10:51:00 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 10:51:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 10:51:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	8/21/2023 10:51:00 PM
Surr: 4-Bromofluorobenzene	93.1	39.1-146		%Rec	1	8/21/2023 10:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	96	60		mg/Kg	20	8/21/2023 10:16:14 PM

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

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

Analytical Report

Lab Order 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-30 2'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 12:15:00 PM

Lab ID: 2308A32-008

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	8/22/2023 1:51:11 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/22/2023 1:51:11 AM
Surr: DNOP	109	69-147		%Rec	1	8/22/2023 1:51:11 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/21/2023 11:13:00 PM
Surr: BFB	96.4	15-244		%Rec	1	8/21/2023 11:13:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	8/21/2023 11:13:00 PM
Toluene	ND	0.047		mg/Kg	1	8/21/2023 11:13:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/21/2023 11:13:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/21/2023 11:13:00 PM
Surr: 4-Bromofluorobenzene	93.1	39.1-146		%Rec	1	8/21/2023 11:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	61	60		mg/Kg	20	8/21/2023 10:28:38 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 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-31 0'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 1:13:00 PM

Lab ID: 2308A32-009

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	8/22/2023 2:12:15 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/22/2023 2:12:15 AM
Surr: DNOP	111	69-147		%Rec	1	8/22/2023 2:12:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/21/2023 11:35:00 PM
Surr: BFB	95.2	15-244		%Rec	1	8/21/2023 11:35:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	8/21/2023 11:35:00 PM
Toluene	ND	0.046		mg/Kg	1	8/21/2023 11:35:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/21/2023 11:35:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	8/21/2023 11:35:00 PM
Surr: 4-Bromofluorobenzene	91.1	39.1-146		%Rec	1	8/21/2023 11:35:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	290	60		mg/Kg	20	8/21/2023 10:41:02 PM

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

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

Analytical Report

Lab Order 2308A32

Date Reported: 8/25/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-31 2'

Project: Arena Roja Unit 1

Collection Date: 8/16/2023 1:19:00 PM

Lab ID: 2308A32-010

Matrix: SOIL

Received Date: 8/18/2023 7:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	8/22/2023 2:32:47 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/22/2023 2:32:47 AM
Surr: DNOP	109	69-147		%Rec	1	8/22/2023 2:32:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/21/2023 11:57:00 PM
Surr: BFB	98.4	15-244		%Rec	1	8/21/2023 11:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	8/21/2023 11:57:00 PM
Toluene	ND	0.050		mg/Kg	1	8/21/2023 11:57:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/21/2023 11:57:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/21/2023 11:57:00 PM
Surr: 4-Bromofluorobenzene	91.5	39.1-146		%Rec	1	8/21/2023 11:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	ND	60		mg/Kg	20	8/21/2023 11:18:16 PM

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308A32

25-Aug-23

Client: Vertex Resources Services, Inc.
Project: Arena Roja Unit 1

Sample ID: MB-76967	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 76967	RunNo: 99107								
Prep Date: 8/21/2023	Analysis Date: 8/21/2023	SeqNo: 3613354	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76967	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 76967	RunNo: 99107								
Prep Date: 8/21/2023	Analysis Date: 8/21/2023	SeqNo: 3613355	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.7	90	110			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

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

Analyte detected in the associated Method Blank
- E

Above Quantitation Range/Estimated Value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308A32

25-Aug-23

Client: Vertex Resources Services, Inc.

Project: Arena Roja Unit 1

Sample ID: MB-76961	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 76961		RunNo: 99104							
Prep Date: 8/21/2023	Analysis Date: 8/21/2023		SeqNo: 3612364		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.3		10.00		82.5	69	147			

Sample ID: LCS-76961	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 76961		RunNo: 99104							
Prep Date: 8/21/2023	Analysis Date: 8/21/2023		SeqNo: 3612365		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		80.7	69	147			

Sample ID: MB-76949	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 76949		RunNo: 99104							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3613454		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		86.6	69	147			

Sample ID: LCS-76949	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 76949		RunNo: 99104							
Prep Date: 8/18/2023	Analysis Date: 8/21/2023		SeqNo: 3613455		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	85.2	61.9	130			
Surr: DNOP	3.6		5.000		72.7	69	147			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 12 of 14

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308A32
25-Aug-23

Client: Vertex Resources Services, Inc.
Project: Arena Roja Unit 1

Sample ID: lcs-76946	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76946	RunNo: 99101								
Prep Date: 8/18/2023	Analysis Date: 8/21/2023	SeqNo: 3613217 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.8	70	130			
Surr: BFB	2100		1000		214	15	244			

Sample ID: mb-76946	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76946	RunNo: 99101								
Prep Date: 8/18/2023	Analysis Date: 8/21/2023	SeqNo: 3613218 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		97.2	15	244			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

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

Analyte detected in the associated Method Blank
- E

Above Quantitation Range/Estimated Value
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308A32
25-Aug-23

Client: Vertex Resources Services, Inc.
Project: Arena Roja Unit 1

Sample ID: lcs-76946	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76946	RunNo: 99101								
Prep Date: 8/18/2023	Analysis Date: 8/21/2023	SeqNo: 3613314 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	1.000	0	79.9	70	130			
Toluene	0.81	0.050	1.000	0	80.7	70	130			
Ethylbenzene	0.83	0.050	1.000	0	82.9	70	130			
Xylenes, Total	2.5	0.10	3.000	0	82.8	70	130			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.3	39.1	146			

Sample ID: mb-76946	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 76946	RunNo: 99101								
Prep Date: 8/18/2023	Analysis Date: 8/21/2023	SeqNo: 3613315 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		93.0	39.1	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 14 of 14



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: 2308A32

RcptNo: 1

Received By: Tracy Casarrubias 8/18/2023 7:40:00 AM

Completed By: Tracy Casarrubias 8/18/2023 8:40:30 AM

Reviewed By: *JS 8-18-23*

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°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: *ms 8/18/23*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC- TMC 8/18/23

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	Yes	Yogi		

Chain-of-Custody Record

Client: Vertex / Devon

Direct Bill

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:

Arena Roja Unit 1

Project #:

23E-02841

Project Manager:

Stephanie McCarty Kent

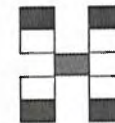
Stolligs

Sampler: Deusalon Costa (HPI)

On Ice: ☒ Yes ☐ No 40g

of Coolers: 1

Cooler Temp (including CF): 5.2 to 0.1 = 5.3 (°C)

HALL ENVIRONMENTAL
ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX/ MTBE / TMB's (8021)	TPH/8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
8-16-23	10:33	Soil	BH23-27 0'	4oz	ice	001										
	10:40		BH23-27 2'			002										
	10:49		BH23-28 0'			003										
	10:54		BH23-28 2'			004										
	11:57		BH23-29 0'			005										
	12:02		BH23-29 2'			006										
	12:09		BH23-30 0'			007										
	12:15		BH23-30 2'			008										
	13:13		BH23-31 0'			009										
	13:19		BH23-31 2'			010										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time	Remarks:
8/17/23	9:15	<u>[Signature]</u>	<u>[Signature]</u>		8/17/23	9:15	
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time	
8/17/23	19:00	<u>[Signature]</u>	<u>[Signature]</u>		8/18/23	7:40	

CC: SMcarty@vertex.ca

W/0# : 21161870

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: www.hallenvironmental.com

August 31, 2023

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: Arena Roja Unit 1

OrderNo.: 2308C22

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 8/23/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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 2308C22
Date Reported: 8/31/2023

CLIENT: Devon Energy
Project: Arena Roja Unit 1
Lab ID: 2308C22-001
Matrix: SOIL
Client Sample ID: BH23-32 0'
Collection Date: 8/17/2023 9:56:00 AM
Received Date: 8/23/2023 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	8.8		mg/Kg	1	8/24/2023 8:44:52 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/24/2023 8:44:52 PM
Surr: DNOP	102	69-147		%Rec	1	8/24/2023 8:44:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 1:10:32 PM
Surr: BFB	93.4	15-244		%Rec	1	8/24/2023 1:10:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 1:10:32 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 1:10:32 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 1:10:32 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/24/2023 1:10:32 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/24/2023 1:10:32 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/25/2023 8:38:00 PM

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

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

Analytical Report

Lab Order 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-32 2.0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 10:01:00 AM

Lab ID: 2308C22-002

Matrix: SOIL

Received Date: 8/23/2023 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	9.8		mg/Kg	1	8/24/2023 8:55:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/24/2023 8:55:52 PM
Surr: DNOP	109	69-147		%Rec	1	8/24/2023 8:55:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 1:34:02 PM
Surr: BFB	95.8	15-244		%Rec	1	8/24/2023 1:34:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 1:34:02 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 1:34:02 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 1:34:02 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/24/2023 1:34:02 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 1:34:02 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/25/2023 8:50:25 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.		

Page 2 of 16

Analytical Report

Lab Order 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-33 0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 10:10:00 AM

Lab ID: 2308C22-003

Matrix: SOIL

Received Date: 8/23/2023 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	8.7		mg/Kg	1	8/24/2023 9:06:55 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/24/2023 9:06:55 PM
Surr: DNOP	102	69-147		%Rec	1	8/24/2023 9:06:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2023 1:57:35 PM
Surr: BFB	95.2	15-244		%Rec	1	8/24/2023 1:57:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 1:57:35 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2023 1:57:35 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2023 1:57:35 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/24/2023 1:57:35 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 1:57:35 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	1600	60		mg/Kg	20	8/25/2023 9:02:49 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.		

Page 3 of 16

Analytical Report

Lab Order 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-33 2.0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 10:14:00 AM

Lab ID: 2308C22-004

Matrix: SOIL

Received Date: 8/23/2023 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	9.3		mg/Kg	1	8/24/2023 9:17:52 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/24/2023 9:17:52 PM
Surr: DNOP	100	69-147		%Rec	1	8/24/2023 9:17:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 2:21:10 PM
Surr: BFB	98.1	15-244		%Rec	1	8/24/2023 2:21:10 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 2:21:10 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 2:21:10 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 2:21:10 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/24/2023 2:21:10 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/24/2023 2:21:10 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	63	60		mg/Kg	20	8/25/2023 9:15:14 PM

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

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

Analytical Report

Lab Order 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-34 0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 11:34:00 AM

Lab ID: 2308C22-005

Matrix: SOIL

Received Date: 8/23/2023 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	9.9		mg/Kg	1	8/24/2023 9:28:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/24/2023 9:28:52 PM
Surr: DNOP	100	69-147		%Rec	1	8/24/2023 9:28:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/24/2023 2:44:47 PM
Surr: BFB	92.2	15-244		%Rec	1	8/24/2023 2:44:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.023		mg/Kg	1	8/24/2023 2:44:47 PM
Toluene	ND	0.046		mg/Kg	1	8/24/2023 2:44:47 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/24/2023 2:44:47 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/24/2023 2:44:47 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/24/2023 2:44:47 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	4500	150		mg/Kg	50	8/26/2023 6:17:28 PM

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

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

CLIENT: Devon Energy

Client Sample ID: BH23-34 2.0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 11:42:00 AM

Lab ID: 2308C22-006

Matrix: SOIL

Received Date: 8/23/2023 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	8.7		mg/Kg	1	8/24/2023 9:39:44 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/24/2023 9:39:44 PM
Surr: DNOP	111	69-147		%Rec	1	8/24/2023 9:39:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 3:08:22 PM
Surr: BFB	99.9	15-244		%Rec	1	8/24/2023 3:08:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 3:08:22 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 3:08:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 3:08:22 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/24/2023 3:08:22 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 3:08:22 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	190	60		mg/Kg	20	8/25/2023 9:40:03 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.		

Page 6 of 16

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2308C22
Date Reported: 8/31/2023

CLIENT: Devon Energy
Project: Arena Roja Unit 1
Lab ID: 2308C22-007
Matrix: SOIL
Client Sample ID: BH23-35 0'
Collection Date: 8/17/2023 11:52:00 AM
Received Date: 8/23/2023 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	8.8		mg/Kg	1	8/24/2023 9:50:44 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/24/2023 9:50:44 PM
Surr: DNOP	111	69-147		%Rec	1	8/24/2023 9:50:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 3:55:46 PM
Surr: BFB	95.3	15-244		%Rec	1	8/24/2023 3:55:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 3:55:46 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 3:55:46 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 3:55:46 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/24/2023 3:55:46 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 3:55:46 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	8/25/2023 10:17:17 PM

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

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

CLIENT: Devon Energy
Project: Arena Roja Unit 1
Lab ID: 2308C22-008

Matrix: SOIL

Client Sample ID: BH23-35 2.0'
Collection Date: 8/17/2023 11:58:00 AM
Received Date: 8/23/2023 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	9.5		mg/Kg	1	8/24/2023 10:01:38 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/24/2023 10:01:38 PM
Surr: DNOP	95.7	69-147		%Rec	1	8/24/2023 10:01:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2023 4:19:28 PM
Surr: BFB	98.0	15-244		%Rec	1	8/24/2023 4:19:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 4:19:28 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2023 4:19:28 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2023 4:19:28 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/24/2023 4:19:28 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	8/24/2023 4:19:28 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	210	60		mg/Kg	20	8/25/2023 10:29:41 PM

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

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

Page 8 of 16

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2308C22
Date Reported: 8/31/2023

CLIENT: Devon Energy
Project: Arena Roja Unit 1
Lab ID: 2308C22-009
Matrix: SOIL
Client Sample ID: BH23-36 0'
Collection Date: 8/17/2023 12:42:00 PM
Received Date: 8/23/2023 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	9.3		mg/Kg	1	8/24/2023 10:12:33 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/24/2023 10:12:33 PM
Surr: DNOP	96.4	69-147		%Rec	1	8/24/2023 10:12:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 4:43:11 PM
Surr: BFB	99.6	15-244		%Rec	1	8/24/2023 4:43:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 4:43:11 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 4:43:11 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 4:43:11 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/24/2023 4:43:11 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/24/2023 4:43:11 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	6200	300		mg/Kg	100	8/26/2023 6:29:53 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 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-36 2.0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 12:53:00 PM

Lab ID: 2308C22-010

Matrix: SOIL

Received Date: 8/23/2023 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	8.8		mg/Kg	1	8/24/2023 10:23:30 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/24/2023 10:23:30 PM
Surr: DNOP	109	69-147		%Rec	1	8/24/2023 10:23:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2023 5:06:48 PM
Surr: BFB	95.5	15-244		%Rec	1	8/24/2023 5:06:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/24/2023 5:06:48 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2023 5:06:48 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2023 5:06:48 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/24/2023 5:06:48 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/24/2023 5:06:48 PM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	400	60		mg/Kg	20	8/25/2023 10:54:30 PM

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

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

Analytical Report

Lab Order 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-37 0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 1:32:00 PM

Lab ID: 2308C22-011

Matrix: SOIL

Received Date: 8/23/2023 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)	13	9.8		mg/Kg	1	8/24/2023 10:34:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/24/2023 10:34:26 PM
Surr: DNOP	84.2	69-147		%Rec	1	8/24/2023 10:34:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 5:30:28 PM
Surr: BFB	94.3	15-244		%Rec	1	8/24/2023 5:30:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/24/2023 5:30:28 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 5:30:28 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 5:30:28 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/24/2023 5:30:28 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 5:30:28 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	8/26/2023 10:09:16 AM

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

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

Page 11 of 16

Analytical Report

Lab Order 2308C22

Date Reported: 8/31/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-37 2.0'

Project: Arena Roja Unit 1

Collection Date: 8/17/2023 1:39:00 PM

Lab ID: 2308C22-012

Matrix: SOIL

Received Date: 8/23/2023 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	8.4		mg/Kg	1	8/24/2023 10:45:23 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	8/24/2023 10:45:23 PM
Surr: DNOP	97.4	69-147		%Rec	1	8/24/2023 10:45:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2023 5:54:08 PM
Surr: BFB	95.8	15-244		%Rec	1	8/24/2023 5:54:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/24/2023 5:54:08 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2023 5:54:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2023 5:54:08 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/24/2023 5:54:08 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/24/2023 5:54:08 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	ND	60		mg/Kg	20	8/26/2023 11:11:18 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#: 2308C22

31-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: MB-77115	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 77115		RunNo: 99250							
Prep Date: 8/25/2023	Analysis Date: 8/25/2023		SeqNo: 3619686		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-77115	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 77115		RunNo: 99250							
Prep Date: 8/25/2023	Analysis Date: 8/25/2023		SeqNo: 3619687		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.7	90	110			

Sample ID: MB-77116	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBS	Batch ID: 77116		RunNo: 99266							
Prep Date: 8/25/2023	Analysis Date: 8/26/2023		SeqNo: 3620955		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-77116	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSS	Batch ID: 77116		RunNo: 99266							
Prep Date: 8/25/2023	Analysis Date: 8/26/2023		SeqNo: 3620958		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

Page 13 of 16

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: 2308C22
31-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: MB-77052	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 77052	RunNo: 99199								
Prep Date: 8/23/2023	Analysis Date: 8/24/2023	SeqNo: 3617393			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		97.8	69	147			

Sample ID: LCS-77052	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 77052	RunNo: 99199								
Prep Date: 8/23/2023	Analysis Date: 8/24/2023	SeqNo: 3617395			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	96.4	61.9	130			
Surr: DNOP	5.0		5.000		99.2	69	147			

Sample ID: 2308C22-012AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-37 2.0'	Batch ID: 77052	RunNo: 99199								
Prep Date: 8/23/2023	Analysis Date: 8/24/2023	SeqNo: 3617892			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	8.7	43.74	0	95.8	54.2	135			
Surr: DNOP	4.4		4.374		102	69	147			

Sample ID: 2308C22-012AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-37 2.0'	Batch ID: 77052	RunNo: 99199								
Prep Date: 8/23/2023	Analysis Date: 8/24/2023	SeqNo: 3617894			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.2	46.21	0	97.1	54.2	135	6.87	29.2	
Surr: DNOP	4.7		4.621		102	69	147	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quantitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308C22

31-Aug-23

Client: Devon Energy

Project: Arena Roja Unit 1

Sample ID: ics-77048	SampType: LCS				TestCode: EPA Method 8015D: Gasoline Range					
Client ID: LCSS	Batch ID: 77048				RunNo: 99204					
Prep Date: 8/23/2023	Analysis Date: 8/24/2023				SeqNo: 3617284	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	80.4	70	130			
Surr: BFB	1900		1000		192	15	244			

Sample ID: mb-77048	SampType: MBLK				TestCode: EPA Method 8015D: Gasoline Range					
Client ID: PBS	Batch ID: 77048				RunNo: 99204					
Prep Date: 8/23/2023	Analysis Date: 8/24/2023				SeqNo: 3617285	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		91.8	15	244			

Sample ID: 2308c22-001ams	SampType: MS				TestCode: EPA Method 8015D: Gasoline Range					
Client ID: BH23-32 0'	Batch ID: 77048				RunNo: 99204					
Prep Date: 8/23/2023	Analysis Date: 8/24/2023				SeqNo: 3618241	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	24.08	0	86.6	70	130			
Surr: BFB	2000		963.4		208	15	244			

Sample ID: 2308c22-001amsd	SampType: MSD				TestCode: EPA Method 8015D: Gasoline Range					
Client ID: BH23-32 0'	Batch ID: 77048				RunNo: 99204					
Prep Date: 8/23/2023	Analysis Date: 8/24/2023				SeqNo: 3618242	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	24.02	0	87.7	70	130	0.905	20	
Surr: BFB	2000		960.6		206	15	244	0	0	

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

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

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308C22

31-Aug-23

Client: Devon Energy
Project: Arena Roja Unit 1

Sample ID: LCS-77048	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 77048		RunNo: 99204							
Prep Date: 8/23/2023	Analysis Date: 8/24/2023		SeqNo: 3617291		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	98.8	70	130			
Toluene	1.0	0.050	1.000	0	101	70	130			
Ethylbenzene	1.0	0.050	1.000	0	102	70	130			
Xylenes, Total	3.1	0.10	3.000	0	103	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	39.1	146			

Sample ID: mb-77048	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 77048		RunNo: 99204							
Prep Date: 8/23/2023	Analysis Date: 8/24/2023		SeqNo: 3617292		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		106	39.1	146			

Sample ID: 2308c22-002ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH23-32 2.0'	Batch ID: 77048		RunNo: 99204							
Prep Date: 8/23/2023	Analysis Date: 8/24/2023		SeqNo: 3618262		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9606	0	105	70	130			
Toluene	1.0	0.048	0.9606	0	108	70	130			
Ethylbenzene	1.1	0.048	0.9606	0	110	70	130			
Xylenes, Total	3.2	0.096	2.882	0	111	70	130			
Surr: 4-Bromofluorobenzene	1.0		0.9606		109	39.1	146			

Sample ID: 2308c22-002amsd	SampType: MSD		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH23-32 2.0'	Batch ID: 77048		RunNo: 99204							
Prep Date: 8/23/2023	Analysis Date: 8/24/2023		SeqNo: 3618263		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9634	0	103	70	130	0.914	20	
Toluene	1.0	0.048	0.9634	0	105	70	130	2.41	20	
Ethylbenzene	1.0	0.048	0.9634	0	108	70	130	1.68	20	
Xylenes, Total	3.1	0.096	2.890	0	108	70	130	1.91	20	
Surr: 4-Bromofluorobenzene	1.0		0.9634		109	39.1	146	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 16 of 16



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: 2308C22

RcptNo: 1

Received By: Tracy Casarrubias 8/23/2023 7:30:00 AM

Completed By: Tracy Casarrubias 8/23/2023 8:47:11 AM

Reviewed By: SCM 8/23/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°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: *[Signature]* 8-23-23

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC- TMC 8/23/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Devon / VertexMailing Address: Direct Bill

Phone #:

email or Fax#:

QA/QC Package:

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

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:

Arena Roja Unit 1

Project #:

23E - 02841

Project Manager:

Kent StalligsSampler: Deusavan CostaOn Ice: ☒ Yes ☐ No 400# of Coolers: 1Cooler Temp (including CF): 20-0=20 (°C)

Container Type and #

Preservative Type

HEAL No.

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
8.11.23	9:56	Soil	BH23-32 0'	400	Ice	001
	10:01		BH23-32 2.0'			002
	10:10		BH23-33 0'			003
	10:14		BH23-33 2.0'			004
	11:34		BH23-34 0'			005
	11:42		BH23-34 2.0'			006
	11:52		BH23-35 0'			007
	11:58		BH23-35 2.0'			008
	12:42		BH23-36 0'			009
	12:53		BH23-36 2.0'			010
	13:22		BH23-37 0'			011
✓	13:39	✓	BH23-37 2.0'			012

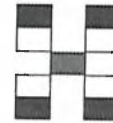
Date: Time: Relinquished by:

Date: Time: Relinquished by:

Received by: Via: Date Time

Received by: Via: Date Time

Remarks:

cc: smccarty@vertex.cdw/o #: 21161870pg 1 of 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

MTBE / TMB's (8021)	TPH/8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)										
BTX	TPH																		



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

October 05, 2023

Kent Stallings

Vertex Resources Services, Inc.

3101 Boyd Drive

Carlsbad, NM 88220

TEL:

FAX:

RE: Arena Royo Unit 1

OrderNo.: 2309E39

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 8 sample(s) on 9/27/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

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 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH23-12 7'

Project: Arena Roya Unit 1

Collection Date: 9/25/2023 9:50:00 AM

Lab ID: 2309E39-001

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/29/2023 3:31:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/29/2023 3:31:26 PM
Surr: DNOP	104	69-147		%Rec	1	9/29/2023 3:31:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/2/2023 6:26:00 PM
Surr: BFB	100	15-244		%Rec	1	10/2/2023 6:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	10/2/2023 6:26:00 PM
Toluene	ND	0.048		mg/Kg	1	10/2/2023 6:26:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/2/2023 6:26:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/2/2023 6:26:00 PM
Surr: 4-Bromofluorobenzene	89.8	39.1-146		%Rec	1	10/2/2023 6:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	450	60		mg/Kg	20	10/3/2023 2:08:36 AM

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

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

Analytical Report

Lab Order 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES-01 3'

Project: Arena Royá Unit 1

Collection Date: 9/25/2023 11:12:00 AM

Lab ID: 2309E39-002

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/29/2023 3:42:15 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/29/2023 3:42:15 PM
Surr: DNOP	155	69-147	S	%Rec	1	9/29/2023 3:42:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/2/2023 6:48:00 PM
Surr: BFB	102	15-244		%Rec	1	10/2/2023 6:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	10/2/2023 6:48:00 PM
Toluene	ND	0.049		mg/Kg	1	10/2/2023 6:48:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/2/2023 6:48:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/2/2023 6:48:00 PM
Surr: 4-Bromofluorobenzene	90.7	39.1-146		%Rec	1	10/2/2023 6:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	100	60		mg/Kg	20	10/3/2023 4:00:17 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	Above Quantitation Range/Estimated Value
	H	Holding times for preparation 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 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES-01 3'

Project: Arena Roy a Unit 1

Collection Date: 9/25/2023 11:17:00 AM

Lab ID: 2309E39-003

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/29/2023 3:53:04 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/29/2023 3:53:04 PM
Surr: DNOP	141	69-147		%Rec	1	9/29/2023 3:53:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/2/2023 7:10:00 PM
Surr: BFB	100	15-244		%Rec	1	10/2/2023 7:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	10/2/2023 7:10:00 PM
Toluene	ND	0.048		mg/Kg	1	10/2/2023 7:10:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/2/2023 7:10:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/2/2023 7:10:00 PM
Surr: 4-Bromofluorobenzene	90.6	39.1-146		%Rec	1	10/2/2023 7:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	510	60		mg/Kg	20	10/3/2023 2:21:01 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 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES-02 3'

Project: Arena Roy a Unit 1

Collection Date: 9/25/2023 11:21:00 AM

Lab ID: 2309E39-004

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	820	9.5		mg/Kg	1	9/29/2023 4:03:53 PM
Motor Oil Range Organics (MRO)	500	47		mg/Kg	1	9/29/2023 4:03:53 PM
Surr: DNOP	125	69-147		%Rec	1	9/29/2023 4:03:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/2/2023 7:32:00 PM
Surr: BFB	102	15-244		%Rec	1	10/2/2023 7:32:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	10/2/2023 7:32:00 PM
Toluene	ND	0.049		mg/Kg	1	10/2/2023 7:32:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/2/2023 7:32:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/2/2023 7:32:00 PM
Surr: 4-Bromofluorobenzene	90.0	39.1-146		%Rec	1	10/2/2023 7:32:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	140	60		mg/Kg	20	10/3/2023 2:33:25 AM

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

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

Page 4 of 13

Analytical Report

Lab Order 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES-02 1'

Project: Arena Roy a Unit 1

Collection Date: 9/25/2023 2:01:00 PM

Lab ID: 2309E39-005

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	140	9.3		mg/Kg	1	9/29/2023 4:14:40 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/29/2023 4:14:40 PM
Surr: DNOP	124	69-147		%Rec	1	9/29/2023 4:14:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/2/2023 7:53:00 PM
Surr: BFB	97.9	15-244		%Rec	1	10/2/2023 7:53:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	10/2/2023 7:53:00 PM
Toluene	ND	0.050		mg/Kg	1	10/2/2023 7:53:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	10/2/2023 7:53:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	10/2/2023 7:53:00 PM
Surr: 4-Bromofluorobenzene	88.5	39.1-146		%Rec	1	10/2/2023 7:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	650	60		mg/Kg	20	10/3/2023 2:45:50 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.		

Analytical Report

Lab Order 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES-03 1'

Project: Arena Roy a Unit 1

Collection Date: 9/25/2023 2:10:00 PM

Lab ID: 2309E39-006

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	9/29/2023 4:25:26 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/29/2023 4:25:26 PM
Surr: DNOP	121	69-147		%Rec	1	9/29/2023 4:25:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/2/2023 8:37:00 PM
Surr: BFB	97.2	15-244		%Rec	1	10/2/2023 8:37:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	10/2/2023 8:37:00 PM
Toluene	ND	0.048		mg/Kg	1	10/2/2023 8:37:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/2/2023 8:37:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/2/2023 8:37:00 PM
Surr: 4-Bromofluorobenzene	87.9	39.1-146		%Rec	1	10/2/2023 8:37:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	470	60		mg/Kg	20	10/3/2023 2:58:15 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 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES-03 1'

Project: Arena Roy a Unit 1

Collection Date: 9/25/2023 2:15:00 PM

Lab ID: 2309E39-007

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: PRD
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/2/2023 2:04:05 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/2/2023 2:04:05 PM
Surr: DNOP	122	69-147		%Rec	1	10/2/2023 2:04:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/2/2023 8:58:00 PM
Surr: BFB	103	15-244		%Rec	1	10/2/2023 8:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	10/2/2023 8:58:00 PM
Toluene	ND	0.049		mg/Kg	1	10/2/2023 8:58:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/2/2023 8:58:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/2/2023 8:58:00 PM
Surr: 4-Bromofluorobenzene	88.8	39.1-146		%Rec	1	10/2/2023 8:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	190	60		mg/Kg	20	10/3/2023 3:10:40 AM

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

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

Page 7 of 13

Analytical Report

Lab Order 2309E39

Date Reported: 10/5/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES-04 1'

Project: Arena Royá Unit 1

Collection Date: 9/25/2023 2:21:00 PM

Lab ID: 2309E39-008

Matrix: SOIL

Received Date: 9/27/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	15	9.8		mg/Kg	1	9/29/2023 4:57:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/29/2023 4:57:37 PM
Surr: DNOP	122	69-147		%Rec	1	9/29/2023 4:57:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/2/2023 9:20:00 PM
Surr: BFB	97.6	15-244		%Rec	1	10/2/2023 9:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	10/2/2023 9:20:00 PM
Toluene	ND	0.047		mg/Kg	1	10/2/2023 9:20:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	10/2/2023 9:20:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	10/2/2023 9:20:00 PM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	10/2/2023 9:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	910	60		mg/Kg	20	10/3/2023 3:23:04 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	Above Quantitation Range/Estimated Value
	H	Holding times for preparation 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#: 2309E39
05-Oct-23

Client: Vertex Resources Services, Inc.
Project: Arena Royá Unit 1

Sample ID: MB-77892	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 77892	RunNo: 100164								
Prep Date: 10/2/2023	Analysis Date: 10/2/2023	SeqNo: 3665909	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-77892	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 77892	RunNo: 100164								
Prep Date: 10/2/2023	Analysis Date: 10/2/2023	SeqNo: 3665910	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			

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 9 of 13

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309E39

05-Oct-23

Client: Vertex Resources Services, Inc.

Project: Arena Royá Unit 1

Sample ID: LCS-77826	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 77826	RunNo: 100101								
Prep Date: 9/28/2023	Analysis Date: 9/29/2023	SeqNo: 3663248			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	117	61.9	130			
Surr: DNOP	5.8		5.000		116	69	147			

Sample ID: MB-77826	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 77826	RunNo: 100101								
Prep Date: 9/28/2023	Analysis Date: 9/29/2023	SeqNo: 3663250			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	13		10.00		127	69	147			

Sample ID: LCS-77873	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 77873	RunNo: 100132								
Prep Date: 10/2/2023	Analysis Date: 10/2/2023	SeqNo: 3664628			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.9		5.000		98.9	69	147			

Sample ID: MB-77873	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 77873	RunNo: 100132								
Prep Date: 10/2/2023	Analysis Date: 10/2/2023	SeqNo: 3664630			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		103	69	147			

Sample ID: LCS-77851	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 77851	RunNo: 100132								
Prep Date: 9/29/2023	Analysis Date: 10/2/2023	SeqNo: 3665777			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.2		5.000		104	69	147			

Sample ID: LCS-77867	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 77867	RunNo: 100132								
Prep Date: 9/29/2023	Analysis Date: 10/2/2023	SeqNo: 3665778			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		5.000		102	69	147			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of standard limits. If undiluted results may be estimated.

B Analyte detected in the associated Method Blank
E Above Quantitation Range/Estimated Value
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 10 of 13

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309E39
05-Oct-23

Client: Vertex Resources Services, Inc.
Project: Arena Royá Unit 1

Sample ID: MB-77851	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 77851	RunNo: 100132								
Prep Date: 9/29/2023	Analysis Date: 10/2/2023	SeqNo: 3665780	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		105	69	147			

Sample ID: MB-77867	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 77867	RunNo: 100132								
Prep Date: 9/29/2023	Analysis Date: 10/2/2023	SeqNo: 3665781	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		101	69	147			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 11 of 13

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309E39

05-Oct-23

Client: Vertex Resources Services, Inc.

Project: Arena Royá Unit 1

Sample ID: ics-77804	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 77804			RunNo: 100146						
Prep Date: 9/27/2023	Analysis Date: 10/2/2023			SeqNo: 3665089		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.4	70	130			
Surr: BFB	2100		1000		212	15	244			

Sample ID: mb-77804	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 77804			RunNo: 100146						
Prep Date: 9/27/2023	Analysis Date: 10/2/2023			SeqNo: 3665090		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	15	244			

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

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

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2309E39

05-Oct-23

Client: Vertex Resources Services, Inc.

Project: Arena Royá Unit 1

Sample ID: lcs-77804	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 77804			RunNo: 100146						
Prep Date: 9/27/2023	Analysis Date: 10/2/2023			SeqNo: 3665053	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.7	70	130			
Toluene	0.87	0.050	1.000	0	86.6	70	130			
Ethylbenzene	0.89	0.050	1.000	0	88.9	70	130			
Xylenes, Total	2.7	0.10	3.000	0	88.7	70	130			
Surr: 4-Bromofluorobenzene	0.90		1.000		89.6	39.1	146			

Sample ID: mb-77804	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 77804			RunNo: 100146						
Prep Date: 9/27/2023	Analysis Date: 10/2/2023			SeqNo: 3665054	Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	39.1	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

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

B Analyte detected in the associated Method Blank

E Above Quantitation Range/Estimated Value

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit



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: 2309E39

RcptNo: 1

Received By: Juan Rojas 9/27/2023 7:45:00 AM

Completed By: Cheyenne Cason 9/27/2023 9:14:08 AM

Reviewed By: *[Signature]* 9-27-23

[Signature]

[Signature]

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? 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: *yu9/27/23*

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: Vertex | Devon

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other☐ EDD (Type)

Turn-Around Time:

☒ Standard ☒ Rush 5 Days

Project Name:

Arena Raja Unit 1

Project #:

23E-02841

Project Manager:

Kent Stallings

Sampler: Deussvan Costabile

On Ice: ☒ Yes ☐ No

of Coolers: 1

Cooler Temp (including CF): $4.30 = 4.3$ ($^{\circ}\text{C}$)

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

HEAL No.

2309E30

Date	Time	Matrix	Sample Name
------	------	--------	-------------

9.25.23	9:50	Seil	PH23-12	71
	11:12		BES-01	3
	11:17		WES-01	3
	11:21		WES-02	3
	14:01		BES-02	1
	14:10		BES-03	1
	14:15		WES-03	
✓	14:21	✓	WES-04	

Date: 9/14/83	Time: 830	Relinquished by: Deuss van Corbelle
---------------	-----------	-------------------------------------

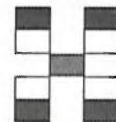
Date: 9/10/23	Time: 1900	Relinquished by: [Signature]
---------------	------------	------------------------------

Received by: Via: Date Time
9/26/23 830

Received by: _____ Via: _____ Date: 9/27/23 Time: 7:00

Remarks:

cc: smcconty@vertex.ca
w/o: 24161870



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]



Eurofins Environment Testing South
Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 13, 2023

Kent Stallings
Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Arena Roja Fed Unit 1

OrderNo.: 2310427

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 14 sample(s) on 10/10/2023 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued October 26, 2023.

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. 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. All samples are reported as received unless otherwise indicated.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-01 3'

Project: Arena Roja Fed Unit 1

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

Lab ID: 2310427-001

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/12/2023 3:06:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/12/2023 3:06:52 PM
Surr: DNOP	97.3	69-147		%Rec	1	10/12/2023 3:06:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/13/2023 2:25:00 AM
Surr: BFB	94.5	15-244		%Rec	1	10/13/2023 2:25:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/13/2023 2:25:00 AM
Toluene	ND	0.048		mg/Kg	1	10/13/2023 2:25:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/13/2023 2:25:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/13/2023 2:25:00 AM
Surr: 4-Bromofluorobenzene	87.2	39.1-146		%Rec	1	10/13/2023 2:25:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	91	59		mg/Kg	20	10/13/2023 10:19:14 PM

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

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

Analytical Report

Lab Order 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-02 3'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:05:00 AM

Lab ID: 2310427-002

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	19	9.3		mg/Kg	1	10/12/2023 3:17:36 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	10/12/2023 3:17:36 PM
Surr: DNOP	98.1	69-147		%Rec	1	10/12/2023 3:17:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/13/2023 2:47:00 AM
Surr: BFB	99.3	15-244		%Rec	1	10/13/2023 2:47:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/13/2023 2:47:00 AM
Toluene	ND	0.050		mg/Kg	1	10/13/2023 2:47:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/13/2023 2:47:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	10/13/2023 2:47:00 AM
Surr: 4-Bromofluorobenzene	87.6	39.1-146		%Rec	1	10/13/2023 2:47:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	180	60		mg/Kg	20	10/13/2023 10:31:35 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 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-03 3'

Project: Arena Roja Fed Unit 1

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

Lab ID: 2310427-003

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/12/2023 3:28:18 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/12/2023 3:28:18 PM
Surr: DNOP	93.6	69-147		%Rec	1	10/12/2023 3:28:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/13/2023 3:08:00 AM
Surr: BFB	95.5	15-244		%Rec	1	10/13/2023 3:08:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/13/2023 3:08:00 AM
Toluene	ND	0.048		mg/Kg	1	10/13/2023 3:08:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/13/2023 3:08:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/13/2023 3:08:00 AM
Surr: 4-Bromofluorobenzene	86.4	39.1-146		%Rec	1	10/13/2023 3:08:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	150	60		mg/Kg	20	10/13/2023 10:43:56 PM

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

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

Analytical Report

Lab Order 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-04 1'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:15:00 AM

Lab ID: 2310427-004

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	10/12/2023 3:39:05 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/12/2023 3:39:05 PM
Surr: DNOP	94.9	69-147		%Rec	1	10/12/2023 3:39:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/13/2023 3:30:00 AM
Surr: BFB	96.1	15-244		%Rec	1	10/13/2023 3:30:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/13/2023 3:30:00 AM
Toluene	ND	0.047		mg/Kg	1	10/13/2023 3:30:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/13/2023 3:30:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/13/2023 3:30:00 AM
Surr: 4-Bromofluorobenzene	86.6	39.1-146		%Rec	1	10/13/2023 3:30:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	86	60		mg/Kg	20	10/13/2023 10:56:16 PM

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

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

Analytical Report

Lab Order 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-05 1'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:20:00 AM

Lab ID: 2310427-005

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/12/2023 3:49:57 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/12/2023 3:49:57 PM
Surr: DNOP	95.7	69-147		%Rec	1	10/12/2023 3:49:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/13/2023 4:13:00 AM
Surr: BFB	96.5	15-244		%Rec	1	10/13/2023 4:13:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/13/2023 4:13:00 AM
Toluene	ND	0.049		mg/Kg	1	10/13/2023 4:13:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/13/2023 4:13:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	10/13/2023 4:13:00 AM
Surr: 4-Bromofluorobenzene	86.8	39.1-146		%Rec	1	10/13/2023 4:13:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	59		mg/Kg	20	10/13/2023 11:08:36 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 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-06 1'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:25:00 AM

Lab ID: 2310427-006

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	10/12/2023 4:00:52 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/12/2023 4:00:52 PM
Surr: DNOP	92.2	69-147		%Rec	1	10/12/2023 4:00:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/13/2023 4:35:00 AM
Surr: BFB	99.7	15-244		%Rec	1	10/13/2023 4:35:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/13/2023 4:35:00 AM
Toluene	ND	0.049		mg/Kg	1	10/13/2023 4:35:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/13/2023 4:35:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	10/13/2023 4:35:00 AM
Surr: 4-Bromofluorobenzene	86.0	39.1-146		%Rec	1	10/13/2023 4:35:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	93	60		mg/Kg	20	10/13/2023 11:45:38 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 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BES23-07 1'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:30:00 AM

Lab ID: 2310427-007

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	10/12/2023 4:22:21 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/12/2023 4:22:21 PM
Surr: DNOP	94.6	69-147		%Rec	1	10/12/2023 4:22:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/13/2023 4:57:00 AM
Surr: BFB	95.1	15-244		%Rec	1	10/13/2023 4:57:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/13/2023 4:57:00 AM
Toluene	ND	0.050		mg/Kg	1	10/13/2023 4:57:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/13/2023 4:57:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	10/13/2023 4:57:00 AM
Surr: 4-Bromofluorobenzene	85.3	39.1-146		%Rec	1	10/13/2023 4:57:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	10/13/2023 11:57:59 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 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WES23-01 0-3'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:35:00 AM

Lab ID: 2310427-008

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	16	9.5		mg/Kg	1	10/12/2023 4:33:11 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/12/2023 4:33:11 PM
Surr: DNOP	93.5	69-147		%Rec	1	10/12/2023 4:33:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/13/2023 5:19:00 AM
Surr: BFB	95.4	15-244		%Rec	1	10/13/2023 5:19:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.025		mg/Kg	1	10/13/2023 5:19:00 AM
Toluene	ND	0.050		mg/Kg	1	10/13/2023 5:19:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/13/2023 5:19:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	10/13/2023 5:19:00 AM
Surr: 4-Bromofluorobenzene	85.5	39.1-146		%Rec	1	10/13/2023 5:19:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	110	60		mg/Kg	20	10/14/2023 12:10:19 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 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WES23-02 0-3'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:40:00 AM

Lab ID: 2310427-009

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	18	9.8		mg/Kg	1	10/12/2023 4:44:04 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/12/2023 4:44:04 PM
Surr: DNOP	91.7	69-147		%Rec	1	10/12/2023 4:44:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	10/13/2023 5:40:00 AM
Surr: BFB	92.9	15-244		%Rec	1	10/13/2023 5:40:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.023		mg/Kg	1	10/13/2023 5:40:00 AM
Toluene	ND	0.046		mg/Kg	1	10/13/2023 5:40:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	10/13/2023 5:40:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	10/13/2023 5:40:00 AM
Surr: 4-Bromofluorobenzene	85.2	39.1-146		%Rec	1	10/13/2023 5:40:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	190	60		mg/Kg	20	10/14/2023 12:22:40 AM

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

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

Analytical Report

Lab Order 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WES23-03 0-1'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:45:00 AM

Lab ID: 2310427-010

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	10/12/2023 4:54:54 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/12/2023 4:54:54 PM
Surr: DNOP	92.2	69-147		%Rec	1	10/12/2023 4:54:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/13/2023 6:02:00 AM
Surr: BFB	96.0	15-244		%Rec	1	10/13/2023 6:02:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/13/2023 6:02:00 AM
Toluene	ND	0.049		mg/Kg	1	10/13/2023 6:02:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/13/2023 6:02:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	10/13/2023 6:02:00 AM
Surr: 4-Bromofluorobenzene	85.3	39.1-146		%Rec	1	10/13/2023 6:02:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JTT
Chloride	ND	60		mg/Kg	20	10/14/2023 12:35:01 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 2310427

Date Reported: 12/13/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: WES23-04 0-1'

Project: Arena Roja Fed Unit 1

Collection Date: 10/6/2023 10:50:00 AM

Lab ID: 2310427-011

Matrix: SOIL

Received Date: 10/10/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	10/12/2023 5:05:45 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/12/2023 5:05:45 PM
Surr: DNOP	93.9	69-147		%Rec	1	10/12/2023 5:05:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/13/2023 6:24:00 AM
Surr: BFB	98.2	15-244		%Rec	1	10/13/2023 6:24:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: CCM
Benzene	ND	0.024		mg/Kg	1	10/13/2023 6:24:00 AM
Toluene	ND	0.048		mg/Kg	1	10/13/2023 6:24:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/13/2023 6:24:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	10/13/2023 6:24:00 AM
Surr: 4-Bromofluorobenzene	86.7	39.1-146		%Rec	1	10/13/2023 6:24:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	210	60		mg/Kg	20	10/14/2023 10:40:06 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#: 2310427
13-Dec-23

Client: Devon Energy
Project: Arena Roja Fed Unit 1

Sample ID: MB-78144	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 78144	RunNo: 100450								
Prep Date: 10/13/2023	Analysis Date: 10/13/2023	SeqNo: 3680464	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-78144	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 78144	RunNo: 100450								
Prep Date: 10/13/2023	Analysis Date: 10/13/2023	SeqNo: 3680465	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Sample ID: MB-78159	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 78159	RunNo: 100474								
Prep Date: 10/14/2023	Analysis Date: 10/14/2023	SeqNo: 3681493	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-78159	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 78159	RunNo: 100474								
Prep Date: 10/14/2023	Analysis Date: 10/14/2023	SeqNo: 3681494	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.4	90	110			

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

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

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2310427

13-Dec-23

Client: Devon Energy

Project: Arena Roja Fed Unit 1

Sample ID: LCS-78099	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 78099	RunNo: 100412								
Prep Date: 10/11/2023	Analysis Date: 10/12/2023	SeqNo: 3678217		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	63	10	50.00	0	126	61.9	130			
Surr: DNOP	6.7		5.000		134	69	147			

Sample ID: MB-78099	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 78099	RunNo: 100412								
Prep Date: 10/11/2023	Analysis Date: 10/12/2023	SeqNo: 3678220		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	69	147			

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical Quantitative Limit

S

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

B

Analyte detected in the associated Method Blank

E

Above Quantitation Range/Estimated Value

J

Analyte detected below quantitation limits

P

Sample pH Not In Range

RL

Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2310427

13-Dec-23

Client: Devon Energy

Project: Arena Roja Fed Unit 1

Sample ID: lcs-78086	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 78086			RunNo: 100432						
Prep Date: 10/11/2023	Analysis Date: 10/12/2023			SeqNo: 3678787		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.9	70	130			
Surr: BFB	2100		1000		212	15	244			

Sample ID: mb-78086	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 78086			RunNo: 100432						
Prep Date: 10/11/2023	Analysis Date: 10/12/2023			SeqNo: 3678788		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.4	15	244			

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical 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#: 2310427

13-Dec-23

Client: Devon Energy

Project: Arena Roja Fed Unit 1

Sample ID: Ics-78086	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 78086	RunNo: 100432								
Prep Date: 10/11/2023	Analysis Date: 10/12/2023	SeqNo: 3678735	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	86.0	70	130			
Toluene	0.86	0.050	1.000	0	86.2	70	130			
Ethylbenzene	0.90	0.050	1.000	0	89.6	70	130			
Xylenes, Total	2.7	0.10	3.000	0	89.0	70	130			
Surr: 4-Bromofluorobenzene	0.88		1.000		87.8	39.1	146			

Sample ID: mb-78086	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 78086	RunNo: 100432								
Prep Date: 10/11/2023	Analysis Date: 10/12/2023	SeqNo: 3678736	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.89		1.000		89.4	39.1	146			

Qualifiers:

*

Value exceeds Maximum Contaminant Level.

D

Sample Diluted Due to Matrix

H

Holding times for preparation or analysis exceeded

ND

Not Detected at the Reporting Limit

PQL

Practical 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: 2310427

RcptNo: 1

Received By: Tracy Casarrubias 10/10/2023 7:45:00 AM

Completed By: Tracy Casarrubias 10/10/2023 8:52:56 AM

Reviewed By: 7/10/10/23

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: SCM 10/10/23

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC- TMC 10/10/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.8	Good	Yes	Morty		

APPENDIX F – Depth to Groundwater Drilling



New Mexico Office of the State Engineer

Transaction Summary

EXPL Permit To Explore

Transaction Number: 753941**Transaction Desc:** C 04793 POD1**File Date:** 12/06/2023**Primary Status:** PMT Permit**Secondary Status:** APR Approved**Person Assigned:** *******Applicant:** DEVON ENERGY RESOURCES**Contact:** DALE WOODALL

Placeholder for final well documents

Events

Date	Type	Description	Comment	Processed By
12/06/2023	APP	Application Received	*	*****
12/06/2023	TEC	Technical Report	*PLG PLN OPS C-	*****
12/11/2023	FTN	Finalize non-published Trans.		*****

Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 04793	0	0		EXP EXPLORATION

**Point of Diversion

C 04793 POD1	655088	3543576	
--------------	--------	---------	--

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.
- C2 No water shall be diverted from this well except for testing purposes which shall not exceed ten (10) cumulative days, and well shall be plugged or capped on or before , unless a permit to use water from this well is acquired from the Office of the State Engineer.
- 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.
- G If artesian water is encountered, the well driller shall comply with all rules and regulations pertaining to the drilling and casing of artesian wells.
- 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

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

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

Approval Code: A - Approved

Action Date: 12/11/2023

Log Due Date: 12/10/2024

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.

12/15/23 8:06 AM

TRANSACTION
SUMMARY

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

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

QUESTIONS

Action 344817

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	344817
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2311745706
Incident Name	NAPP2311745706 ARENA ROJA FEDERAL UNIT #001 @ 30-025-37257
Incident Type	Release Other
Incident Status	Remediation Closure Report Received
Incident Well	[30-025-37257] ARENA ROJA FEDERAL UNIT #001

Location of Release Source	
Please answer all the questions in this group.	
Site Name	ARENA ROJA FEDERAL UNIT #001
Date Release Discovered	04/26/2023
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Not answered.
Produced Water Released (bbls) Details	Not answered.
Is the concentration of chloride in the produced water >10,000 mg/l	Not answered.
Condensate Released (bbls) Details	Cause: Equipment Failure Pipeline (Any) Condensate Released: 10 BBL Recovered: 5 BBL Lost: 5 BBL.
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)	An underground line burst. The leak is within the facility. 10 bbls condensate released. 5 bbls recovered. Well was shut in and valves closed.

District I

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

District II

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

District III

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

District IV

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

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

QUESTIONS, Page 2

Action 344817

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	344817
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

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

Initial Response

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

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

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

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

I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dmn.com Date: 05/15/2024
--	--

District I

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

District II

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

District III

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

District IV

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

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

QUESTIONS, Page 3

Action 344817

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:
	6137
	Action Number:
	344817
	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	Direct Measurement
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 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1 and 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan

Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No

Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)

Chloride	(EPA 300.0 or SM4500 Cl B)	210
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	19
GRO+DRO	(EPA SW-846 Method 8015M)	19
BTEX	(EPA SW-846 Method 8021B or 8260B)	0
Benzene	(EPA SW-846 Method 8021B or 8260B)	0

Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.

On what estimated date will the remediation commence	05/15/2023
On what date will (or did) the final sampling or liner inspection occur	10/06/2023
On what date will (or was) the remediation complete(d)	09/25/2023
What is the estimated surface area (in square feet) that will be reclaimed	1387
What is the estimated volume (in cubic yards) that will be reclaimed	96
What is the estimated surface area (in square feet) that will be remediated	1387
What is the estimated volume (in cubic yards) that will be remediated	96

These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

District I

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

District II

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

District III

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

District IV

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

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

QUESTIONS, Page 4

Action 344817

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	344817
	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: 05/15/2024
<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>	

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

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

QUESTIONS, Page 5

Action 344817

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 344817
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

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

District I

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

District II

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

District III

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

District IV

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

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

QUESTIONS, Page 6

Action 344817

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:	6137
	Action Number:	344817
	Action Type:	[C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	344835
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	10/06/2023
What was the (estimated) number of samples that were to be gathered	11
What was the sampling surface area in square feet	1387

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	1387
What was the total volume (cubic yards) remediated	96
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	1387
What was the total volume (in cubic yards) reclaimed	96
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: 05/15/2024
--	--

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

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

QUESTIONS, Page 7

Action 344817

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID:
	6137
	Action Number:
	344817
Action Type:	
[C-141] Remediation Closure Request C-141 (C-141-v-Closure)	

QUESTIONS

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

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

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

CONDITIONS

Action 344817

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 344817
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	6/3/2024