Volume calculator

There was no volume calculator prepared when the spill occurred.

Incident Numbers: nAB1432826765 and nRM2007031081

Release Assessment and Closure

Cotton Draw Unit #205H

Section 26, Township 24 South, Range 31 East

API: 30-015-42071

County: Eddy

Vertex File Number: 23E-04191

Prepared for:

Devon Energy Production Company, LP

Prepared by:

Vertex Resource Services Inc.

Date:

February 2024

Release Assessment and Closure
Cotton Draw Unit #205H
Section 26, Township 24 South, Range 31 East
API: 30-015-42071
County: Eddy

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

New Mexico Oil Conservation Division – District 2
811 S. 1st Street
Artesia, New Mexico 88210

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

Stephanie McCarty

Stephanie McCarty, B.Sc.
ENVIRONMENTAL TECHNOLOGIST, REPORTING

February 15, 2024
Date

kent stallings P.G.

Kent Stallings, P.G.
SENIOR GEOLOGIST, REPORT REVIEW

February 22, 2024
Date

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1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a produced water and natural gas release that occurred on February 24, 2020, and a drilling mud/fluid release that occurred on November 11, 2014, at Cotton Draw Unit #205H API 30-015-42071 (hereafter referred to as the "site"). Devon submitted initial C-141 Release Notifications (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 2 on March 10, 2020, and December 2, 2014. Incident ID numbers NRM2007031081 and NAB1432826765 were assigned to these incidents.

A natural gas and liquid natural gas release that occurred on May 15, 2014, is listed at Cotton Draw Unit #205H per OCD permitting incident details. The associated initial C-141 submitted for the May 15, 2014, release was completed by Enterprise Products Operating, LLC and assigned incident ID nAB1432853576 at facility pipeline right-of-way (ROW) 30137 Gathering Lateral, which conflicts with the assigned incident ID NAB1432841786 for Cotton Draw Unit #205H.

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 these releases, with the understanding that restoration of these release sites will be completed following remedial activities and reclamation 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 February 24, 2020, release occurred due to a malfunction in equipment maintenance, resulting in fluid releasing onto the open pad. The incident was reported on March 10, 2020, and involved the release of approximately 30 barrels (bbl.) of produced water on the open pad site. No fluid was recovered during the initial clean-up.

The November 11, 2014, release occurred due to a manual error in equipment, resulting in drilling fluid releasing onto the open pad. The incident was reported on December 2, 2014, and involved the release of approximately 12 bbl. of fluid on the open pad site. All fluid was recovered during the initial clean-up.

The May 15, 2014, release, according to OCD permitting incident details on emnrd.nm.gov, occurred due to suspected corrosion in a pipe-wall, resulting in the release of natural gas and liquid natural gas. The incident was reported on May 30, 2014, and involved the release of approximately 6.46 Mcf of natural gas and 2 bbl. of liquid natural gas at the site. No materials were recovered during the initial clean-up. According to the associated C-141 and RP number, the release area is associated with the Pipeline ROW 30137 Gathering Lateral site, a location 40 miles north of Cotton Draw Unit #205. This location appears to have multiple releases with multiple RP numbers, all within a consecutive time period and within proximity of one another. All releases have received approved closure except incident nAB1432853576.

Additional details relevant to the releases are presented in the C-141 Reports.

3.0 Site Characteristics

The site is located approximately 18.3 miles southeast of Malaga, New Mexico, at 32.1814537, -103.7447433 (Google Inc., 2023). The legal location for the site is Section 26, Township 24 South and Range 31 East in Eddy County, New Mexico. The release area is located on Bureau of Land Management property. An aerial photograph and site schematic are presented on Figure 1.

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

The surrounding landscape is associated with upland landforms with elevations ranging between 2,800 and 5,000 feet. The climate is semiarid with average annual precipitation ranging between 8 and 13 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be grass species. The historical plant community is dominated by black grama (*Bouteloua eriopoda*), dropseeds (Sp*orobolus flexuosus, S. contractus, S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*) while litter and bare ground are a significant proportion of ground cover (United States Department of Agriculture, Natural Resources Conservation Service, 2023). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

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

4.0 Closure Criteria Determination

The nearest active wells to the site are New Mexico Office of the State Engineer (NMOSE) exploratory boreholes C-04636 POD-1 and 04633 POD-1, located approximately 0.52 miles east of the site and approximately 0.58 miles west of the site (United States Geological Survey, 2023). Data from 2022 show the NMOSE boreholes recorded dry holes at 55 feet below ground surface (bgs). Information pertaining to the depth to ground water determination is included in Appendix B. A variance of the depth to groundwater distance was requested and accepted by NMOCD for C-04633 during remediation efforts in 2020. The request and approval correspondence are included in Appendix D.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately 7.5 miles northwest of the site (United States Fish and Wildlife Service, 2023).

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

Table 1. Closure Criteria Determination			
Site Name: Cotton Draw Unit # 205H			
Spill Coordinates: 32.181492, -103.744724		**X: 618337**	**Y: 3561244**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	**135**	feet
	Distance between release and nearest DTGW reference	**2,735**	feet
		0.52	miles
	Date of nearest DTGW reference measurement	**June 8, 2022**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	39,808	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	33,353	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	22,733	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**	2,833	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	10,499	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	**76,560**	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	**36,307**	feet
10	Within a 100-year Floodplain	>500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**18,639**	feet
11	Soil Type	Berino complex	
12	Ecological Classification	loamy sand	
13	Geology	Qep	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'

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

Table 2. Closure Criteria for Soils Impacted by a Release

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

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

5.0 Remedial Actions Taken

An initial site inspection of the release area was started on August 21, 2023, and completed on January 27, 2024, which identified the area of the releases specified in the initial C-141 Reports, in addition to impacts on the pad that may be associated with incident nAB1432853576, and closure denial remarks and concerns for incident nRM2007031081 on July 5, 2023, and estimated the approximate volume of the release. The impacted area was determined to be approximately 87 feet long and 153 feet wide; the total affected area was 9,295 square feet. The area remediated was determined to be approximately 24 feet long and 25 feet wide; the total remediated area was 626 square feet. Initial characterization field screening results are presented in Table 3. The Daily Field Reports associated with the site inspection are included in Appendix C.

Remediation efforts began on December 1, 2023, and were finalized on December 6, 2023. Vertex personnel supervised the excavation of impacted soils. Field screening was completed on a total of six sample points and consisted of analysis using a Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and electrical conductivity meter (chlorides). Field screening results were used to identify areas requiring further remediation. Soils were removed to a depth of 1-foot bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility as stipulated by the Form C-138 Request for Approval to Accept Solid Waste. Daily Field Reports documenting various phases of the remediation are presented in Appendix C.

Notification that confirmatory samples were being collected was provided to the NMOCD on December 1, 2023 (Appendix D). Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments or less. A total of six samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Eurofins Environment Testing South Central, LLC, formerly Hall Environmental Analysis Laboratory, Inc under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are

presented in Table 4, and the laboratory data reports are included in Appendix E. All confirmatory samples collected and analyzed were below closure criteria for the site.

6.0 Closure Request

The release area was fully delineated, remediated, and backfilled with local soils. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted by a Release locations "51 - 100 feet to groundwater". Based on these findings, Devon Energy Production Company, LP 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

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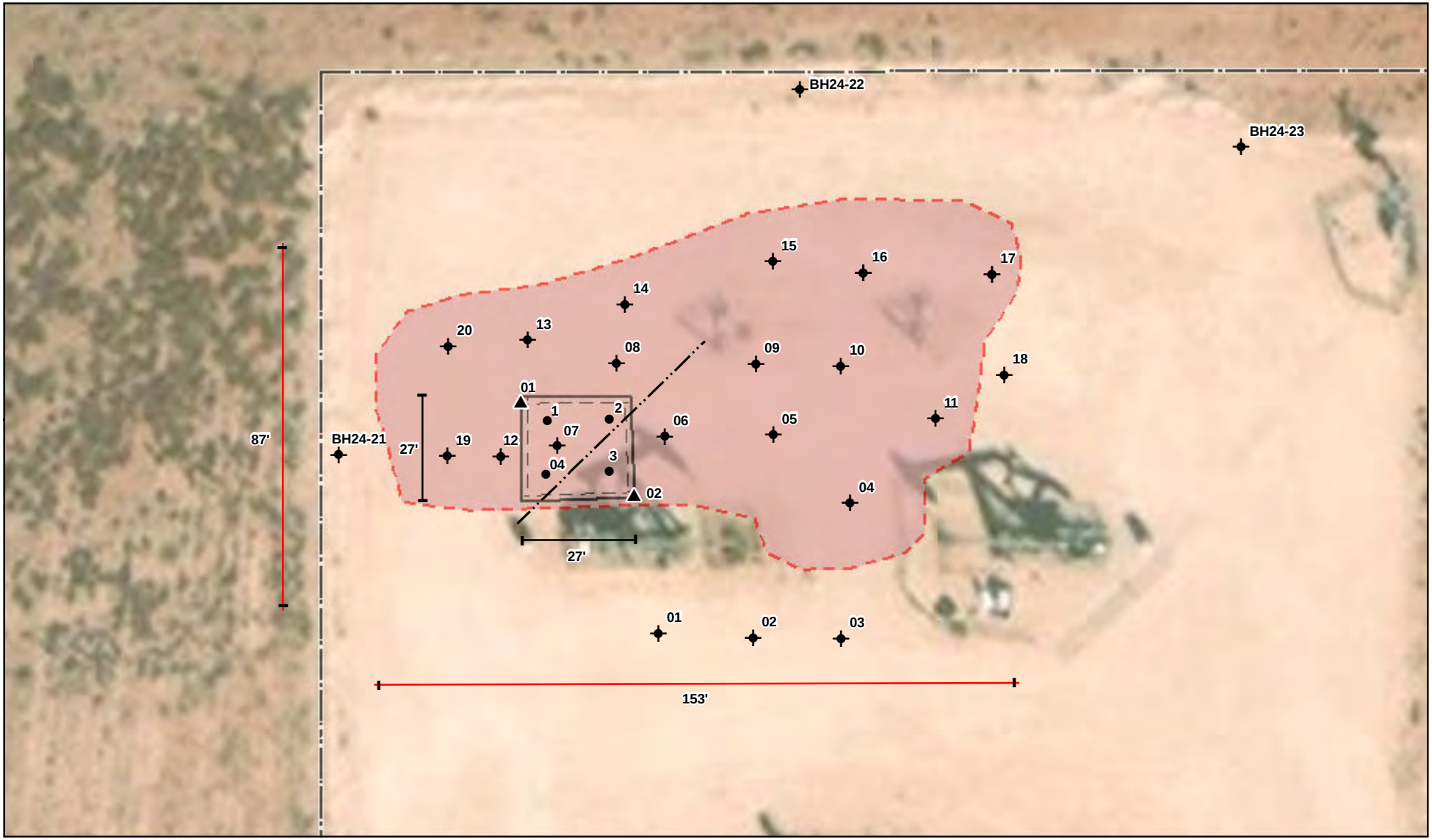
United States Geological Survey. (2023). *National Water Information System: Web Interface*. Retrieved from https://waterdata.usgs.gov/nwis

8.0 Limitations

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

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

FIGURES



Base Sample (Prefixed by "BES23-")
Wall Sample (Prefixed by "WES23-")
Approximate Lease Boundary
Proposed Excavation to 1' bgs (~638 sq.ft.)
Borehole (Prefixed by "BH23-")
Powerline (Underground)
Approximate Release Area (~9,295 sq.ft.)

VERTEX

0 15 30 ft

Map Center:
Lat/Long: 32.181572, -103.744742

NAD 1983 UTM Zone 13N
Date: Feb 06/24

N

Characterization Sampling Site and Proposed Excavation Schematic
Cotton Draw Unit #205H

FIGURE:
1

devon

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

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

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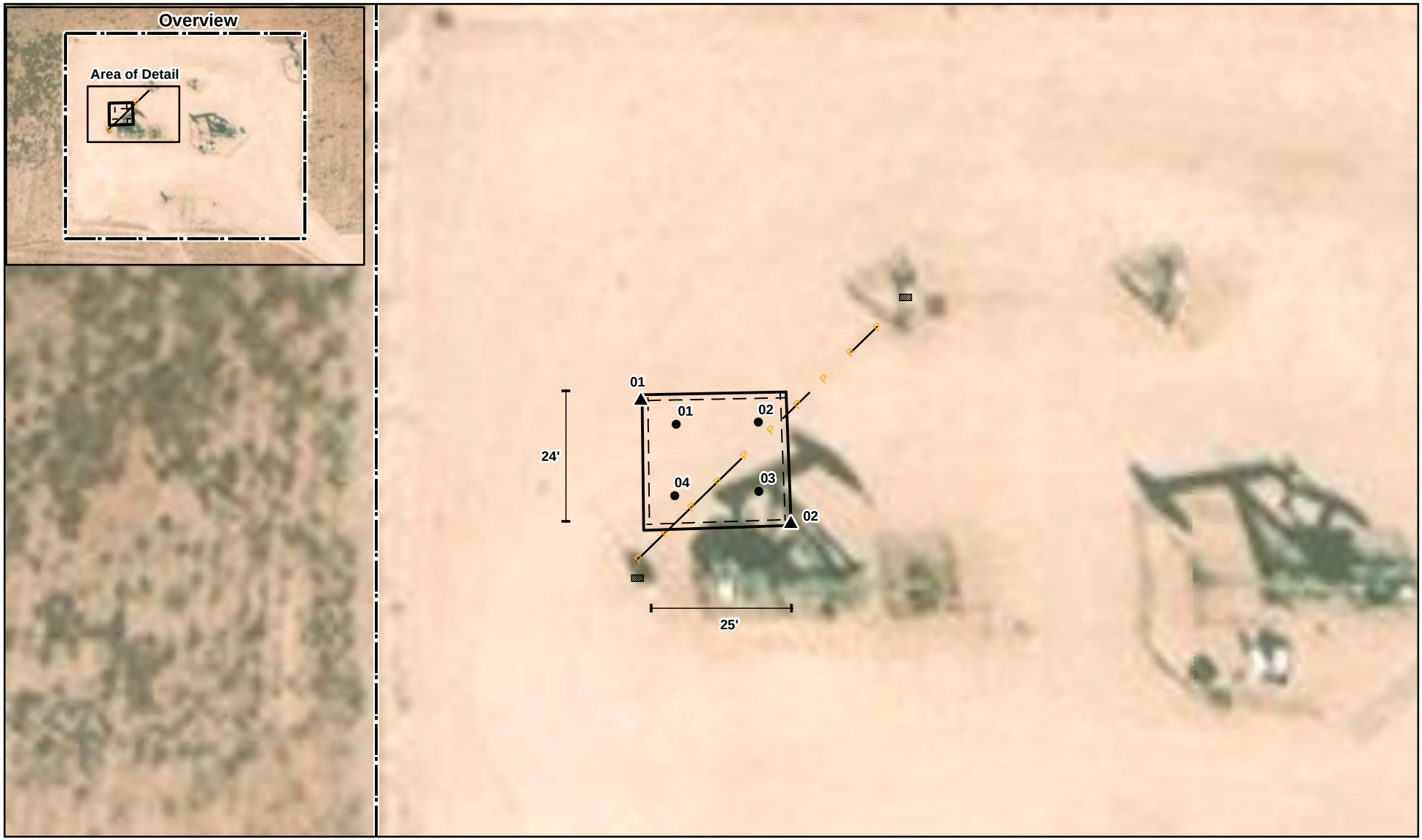
Document Path: S:\04 - Geomatics\1-Projects_US PROJECTS\Devon Energy Corporation\2023\23E-04191- Cotton Draw Unit #205H\Figure 1 Characterization Sampling Site and Proposed Excavation Schematic (23E-04191).mxd



● Base Sample (Prefixed by "BES23-")
▲ Wall Sample (Prefixed by "WES23-")
Approximate Lease Boundary
Electrical Box/Panel
Powerline (Underground)
Excavation to 1' bgs (~626 sq.ft.)

VERTEX

0 15 30 ft

Map Center:
Lat/Long: 32.181574, -103.744851

NAD 1983 UTM Zone 13N
Date: Dec 19/23

N

Confirmation Sampling Site Schematic
Cotton Draw Unit #205H

FIGURE:
2

devon

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

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

VERSATILITY. EXPERTISE.

Document Path: C:\Users\kmorash\OneDrive - Vertex Resource Group Ltd\Documents\Local Projects\US\Devon\COTTON DRAW UNIT #205H\Figure 2 Confirmation Site Schematic(23E-04191).mxd

TABLES

Client Name: Devon Energy Production Company, LP
Site Name: Cotton Draw Unit #205H
NMOCD Tracking #: nAB1432826765, and nRM2007031081
Project #: 23E-04191
Lab Reports: 2308C21, 2308D04, 2308E00 and 2401B07

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

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH23-01	0	August 21, 2023	0	51	0	-	-	-	-	-	-	-	-
	2	August 21, 2023	0	41	0	-	-	-	-	-	-	-	-
BH23-02	0	August 21, 2023	0	68	347	-	-	-	-	-	-	-	-
	2	August 21, 2023	0	14	174	-	-	-	-	-	-	-	-
BH23-03	0	August 22, 2023	-	113	0	ND	ND	ND	35	ND	35	35	170
	2	August 22, 2023	-	33	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-04	0	August 22, 2023	-	388	281	ND	0.06	ND	200	230	200	430	500
	2	August 22, 2023	-	35	1	ND	ND	ND	ND	ND	ND	ND	280
BH23-05	0	August 22, 2023	-	186	3,048	ND	ND	ND	240	ND	240	240	3300
	2	August 22, 2023	-	49	245	ND	ND	ND	ND	ND	ND	ND	330
BH23-06	0	August 22, 2023	-	676	1,482	ND	ND	ND	470	440	470	910	1700
	2	August 22, 2023	-	38	640	ND	ND	ND	ND	ND	ND	ND	730
BH23-07	0	August 22, 2023	-	-	1,935	ND	ND	ND	2900	2100	**2900**	**5000**	1900
	2	August 22, 2023	-	-	0	ND	ND	ND	ND	ND	ND	ND	120
BH23-08	0	August 22, 2023	-	114	0	ND	ND	ND	38	81	38	119	170
	2	August 22, 2023	-	43	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-09	0	August 22, 2023	-	-	3,385	ND	ND	ND	ND	ND	ND	ND	4000
	2	August 22, 2023	-	-	0	ND	ND	ND	ND	ND	ND	ND	75
BH23-10	0	August 22, 2023	-	-	1,349	ND	ND	ND	ND	ND	ND	ND	110
	2	August 22, 2023	-	-	0	ND	ND	ND	ND	ND	ND	ND	1600
BH23-11	0	August 22, 2023	-	159	0	ND	ND	ND	93	130	93	223	85
	2	August 22, 2023	-	72	0	ND	ND	ND	ND	ND	ND	ND	ND
BH23-12	0	August 23, 2023	-	-	4,165	ND	ND	ND	ND	ND	ND	ND	1600
	1	August 23, 2023	-	19	196	ND	ND	ND	ND	ND	ND	ND	260
BH23-13	0	August 23, 2023	-	-	1,779	ND	ND	ND	ND	ND	ND	ND	1700
	1	August 23, 2023	-	-	311	ND	ND	ND	ND	ND	ND	ND	350
BH23-14	0	August 23, 2023	-	-	3,761	ND	ND	ND	ND	ND	ND	ND	3000
	1	August 23, 2023	-	-	903	ND	ND	ND	ND	ND	ND	ND	630
	2	August 23, 2023	-	40	287	ND	ND	ND	ND	ND	ND	ND	200
BH23-15	0	August 23, 2023	-	-	3,322	ND	ND	ND	ND	ND	ND	ND	2800
	1	August 23, 2023	-	-	987	ND	ND	ND	ND	ND	ND	ND	670
	2	August 23, 2023	-	46	499	-	-	-	-	-	-	-	-
BH23-16	0	August 23, 2023	-	-	2,280	ND	ND	ND	ND	ND	ND	ND	2300
	1	August 23, 2023	-	15	515	ND	ND	ND	ND	ND	ND	ND	480
BH23-17	0	August 23, 2023	-	-	1,232	ND	ND	ND	ND	ND	ND	ND	1200
	1	August 23, 2023	-	17	137	ND	ND	ND	ND	ND	ND	ND	210
BH23-18	0	August 23, 2023	-	25	450	ND	ND	ND	ND	ND	ND	ND	530
	1	August 23, 2023	-	21	0	ND	ND	ND	ND	ND	ND	ND	110
	2	August 23, 2023	-	-	-	ND	ND	ND	ND	ND	ND	ND	340
BH23-19	0	August 23, 2023	-	-	1,206	ND	ND	ND	ND	ND	ND	ND	1200
	2	August 23, 2023	-	-	119	ND	ND	ND	ND	ND	ND	ND	220
BH23-20	0	August 23, 2023	-	88	163	ND	ND	ND	56	ND	56	56	1100
	2	August 23, 2023	-	10	0	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Devon Energy Production Company, LP
Site Name: Cotton Draw Unit #205H
NMOCD Tracking #: nAB1432826765 and NRM2007031081
Project #: 23E-04191
Lab Reports: 2308C21, 2308D04, 2308E00 and 2401B07

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

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-21	0	January 24, 2024	0	88	445	ND	ND	ND	ND	ND	ND	ND	420
	2	January 24, 2024	0	44	503	ND	ND	ND	ND	ND	ND	ND	280
BH24-22	0	January 24, 2024	0	79	620	ND	ND	ND	ND	ND	ND	ND	320
	2	January 24, 2024	0	22	130	ND	ND	ND	ND	ND	ND	ND	ND
BH24-22	0	January 24, 2024	0	56	445	ND	ND	ND	ND	ND	ND	ND	470
	2	January 24, 2024	0	9	113	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: Cotton Draw Unit #205H
NMOCD Tracking #: nAB1432826765 and NRM2007031081
Project #: 23E-04191
Lab Report: 2312524

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

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BES23-01	1	December 6, 2023	0	76	610	ND	ND	ND	65	57	65	122	340
BES23-02	1	December 6, 2023	0	62	525	ND	ND	ND	14	ND	14	14	160
BES23-03	1	December 6, 2023	0	40	604	ND	ND	ND	ND	ND	ND	ND	440
BES23-04	1	December 6, 2023	0	112	850	ND	ND	ND	ND	ND	ND	ND	310
WES23-01	0 - 1	December 6, 2023	0	434	1,317	ND	ND	ND	240	190	240	430	950
WES23-02	0 -1	December 6, 2023	0	382	1,723	ND	ND	ND	190	170	190	360	1,400

"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)

APPENDIX A - NMOCD C-141 Reports

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

State of New Mexico
Energy Minerals and Natural Resources

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

NM OIL CONSERVATION
ARTESIA DISTRICT
NOV 21 2014
RECEIVED

Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1432826765

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company – Devon Energy 6137	Contact – Trae Warcup
Address – 4134 Seven Rivers Highway	Telephone No. – (575) 748-3371
Facility Name – Cotton Draw Unit 205H	Facility Type – Oil/Gas Well Pad (Drilling)

Surface Owner – Federal	Mineral Owner - Federal	API No. - 3001542071

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	26	24S	31E	150	South	1450	East	Eddy

Latitude 32° 10' 53.374" N **Longitude** 103° 44' 41.007" W

NATURE OF RELEASE

Type of Release – Drilling Mud (Fresh Water)	Volume of Release – 12 bbls.	Volume Recovered – 12 bbls.
Source of Release – Mud Shaker	Date and Hour of Occurrence – 11/17/14, 8:15 am	Date and Hour of Discovery – 11/17/14, 8:15 am
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Approximately 12 barrels of fresh water drilling mud flowed out of the three sided bin and spilled onto the ground. While circulating drilling mud through the pits, the discharge valve on the line running to the possum bellies was manually opened allowing the drilling fluid to flow over the shakers filling up the three sided bin and continued spilling onto the ground. Used a front end loader to clean up.

Describe Area Affected and Cleanup Action Taken.*

Area was approximately 150 sq. ft., used a front end loader for clean up.

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

Signature:

Printed Name: Trae Warcup

Title: EHS Professional Drilling

E-mail Address: trae.warcup@dvn.com

Date: 11/21/2014 Phone: 575-628-2846

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 11/24/14 Expiration Date: NA

Conditions of Approval: Attached ☐

Remediation per O.C.D. Rules & Guidelines
SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 12/24/14

2RP-2622

* Attach Additional Sheets If Necessary

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	NRM2007031081
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)

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

State of New Mexico
Oil Conservation Division

Incident ID	NRM2007031081
District RP	
Facility ID	
Application ID	

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

Initial Response

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

- ☐ The source of the release has been stopped.
- ☐ The impacted area has been secured to protect human health and the environment.
- ☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☐ All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: _____ Title: _____

Signature: Kendra DeHoyos Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Ramona Marcus Date: 3/10/2020

Incident ID	nAB1432826765, NAB1432841786, NRM2007031081
District RP	2RP-2622
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?	135 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	nAB1432826765, NAB1432841786, NRM2007031081
District RP	2RP-2622
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:

State of New Mexico
Oil Conservation Division

Incident ID	nAB1432826765, NAB1432841786, NRM2007031081
District RP	2RP-2622
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	nAB1432826765, NAB1432841786, NRM2007031081
District RP	2RP-2622
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: Cotton Draw Unit # 205H			
Spill Coordinates: 32.181492, -103.744724		X: 618337	Y: 3561244
Site Specific Conditions		Value	Unit
1	Depth to Groundwater (nearest reference)	**135**	feet
	Distance between release and nearest DTGW reference	**2,833**	feet
		0.52	miles
	Date of nearest DTGW reference measurement	**June 8, 2022**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	39,808	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	33,353	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	22,733	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**	2,833	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	10,499	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	**76,560**	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	**36,307**	feet
10	Within a 100-year Floodplain	>500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**18,639**	feet
11	Soil Type	Berino complex	
12	Ecological Classification	loamy sand	
13	Geology	Qep	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'

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

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

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

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

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04636 POD1		CUB	ED	3	4	3	25	24S	31E	619200	3561279	863			
C 04643 POD1		C	ED	4	2	2	05	23S	27E	619200	3561279	863	305	135	170
C 04633 POD1		CUB	ED	2	1	1	35	24S	31E	617394	3561170	945			
C 04654 POD1		CUB	ED	3	3	4	25	24S	31E	619764	3561226	1427	55		
C 02574		CUB	ED	1	1	2	02	25S	31E	618092	3559494*	1767			
C 02571		CUB	ED	4	1	2	02	25S	31E	618292	3559294*	1950	860		
C 02572		CUB	ED	4	2	2	02	25S	31E	618695	3559294*	1982	852		
C 04593 POD1		CUB	ED	3	4	4	34	24S	31E	616903	3559674	2126	55		
C 02573		CUB	ED	1	4	2	02	25S	31E	618499	3559091*	2159			
C 02569		CUB	ED	4	4	2	02	25S	31E	618699	3558891*	2380	1016		
C 02568		CUB	ED	4	3	1	01	25S	31E	619103	3558892*	2473	1025		
C 02570		CUB	ED	4	2	4	02	25S	31E	618704	3558489*	2779	895		
C 03830 POD1		CUB	ED	4	2	4	02	25S	31E	618632	3558432	2826	450		
C 04388 POD1		C	ED	3	2	1	23	24S	31E	617546	3564006	2873	910	868	42
C 04722 POD2		CUB	LE	2	1	1	06	25S	32E	620808	3559499	3024	55		
C 04576 POD1		CUB	ED	1	2	1	23	24S	31E	617700	3564324	3145	910	850	60
C 04665		CUB	LE	1	1	2	30	24S	32E	621350	3562798	3390	120		
C 04635 POD1		CUB	ED	4	3	4	01	25S	31E	619958	3558078	3556	55		
C 04632 POD1		CUB	ED	1	2	2	10	25S	31E	616802	3557964	3621	55		
C 04508 POD1		CUB	ED	4	4	3	15	24S	31E	616298	3564493	3835	110		
C 04620 POD1		CUB	LE	4	3	4	06	25S	32E	621445	3558018	4479	55		
C 04479 POD1		CUB	ED	2	1	1	04	25S	31E	614182	3559400	4545	0	0	0

Average Depth to Water: **463 feet**
Minimum Depth: **0 feet**
Maximum Depth: **868 feet**

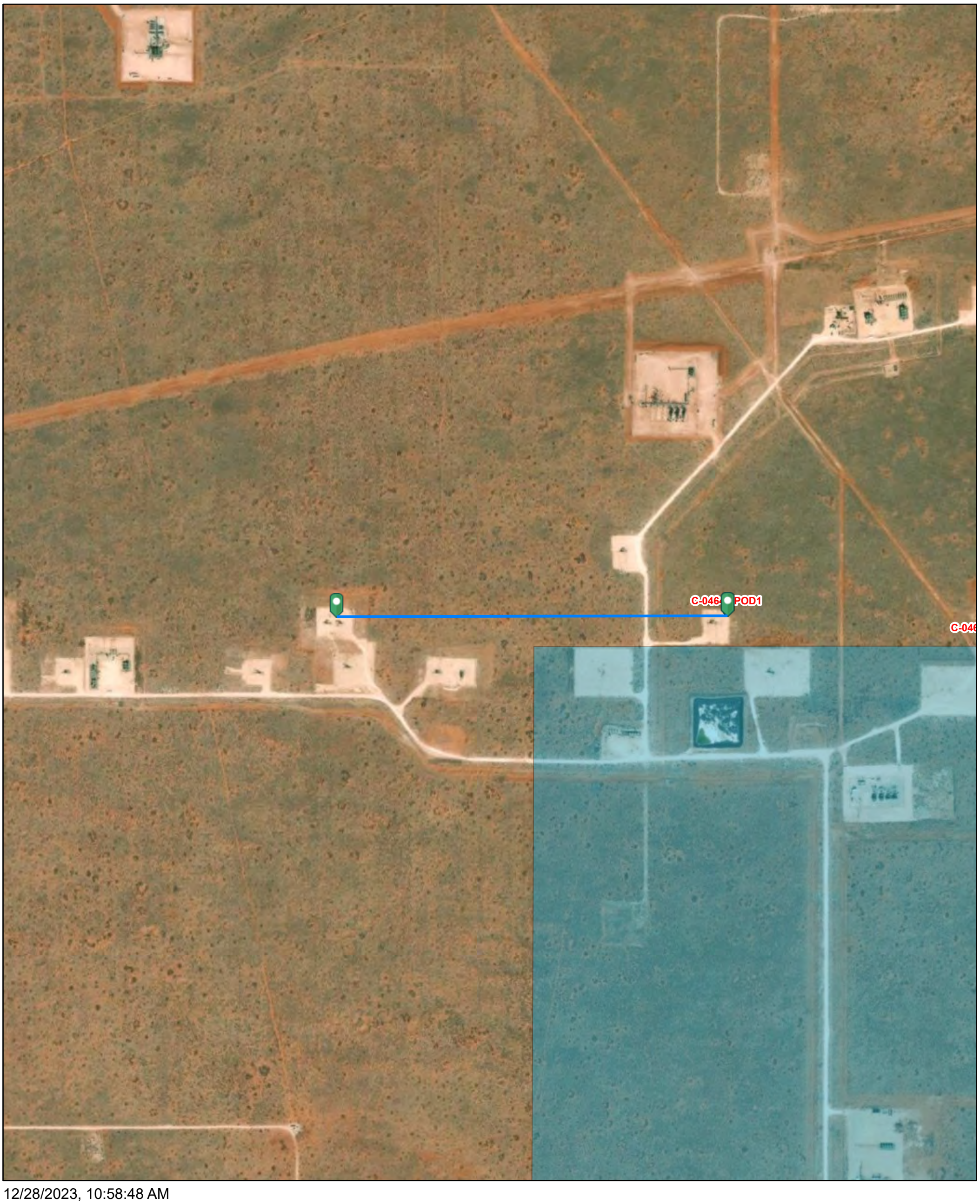
Record Count: 22

UTMNAD83 Radius Search (in meters):

Easting (X): 618337 **Northing (Y):** 3561244 **Radius:** 5000

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

Cotton Draw Unit #205H C-04636 POD-1 2,735 Feet from Edge of Release



12/28/2023, 10:58:48 AM

Override 1

GIS WATERS PODs

Active

OSE District Boundary

New Mexico State Trust Lands

Both Estates

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar

Online web user

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

OSE POD Location Map

10/4/2023, 4:24:00 PM

GIS WATERS PODs
- Active

OSE District Boundary

Water Right Regulations
- Closure Area

New Mexico State Trust Lands
- Subsurface Estate
- Both Estates
- SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

U.S. Department of Energy Office of Legacy Management, Maxar, Esri Community Maps Contributors, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US

Online web user

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

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (TW-1)	N/A	C-4636

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Devon Energy	575-748-1838

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6488 7 Rivers Hwy	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	10	54.21	N
	LONGITUDE	103	44	8.06	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SW SE SW Sec.25 T24S R31S NMPM

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
6/8/2022	6/8/2022	Temporary Well	±55	N/A

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): N/A

DATE STATIC MEASURED: 6/14/2022

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	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)
0	55	±6.5	Boring-HSA	--	--	--	--

OSE DII JUN 21 2022 PM 3:29

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4636-POD1 (TW-1)	POD NO. 1 (TW-1)	TRN NO. 726474	
LOCATION Expl 24.31.25.343		WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	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)
0	12	12	Sand, Fine-grained, poorly graded, 2.5 YR 3/6, Dark Red	Y ✓ N	
12	15	3	Clay, Stiff, with fine-grained sand, 5 YR 5/6, Reddish Yellow	Y ✓ N	
15	44	29	Caliche, well consolidated, 7.5 YR 7/4, Pink	Y ✓ N	
44	55	11	Sand, Fine-grained, poorly graded, with Caliche, 7.5 YR 7/6, Reddish Yellow	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:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

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: Temporary well material removed and soil boring backfilled using drill cuttings from total depth to ten feet below ground surface(bgs), then hydrated bentonite chips ten feet bgs to surface.
18
Cotton Draw Unit 207

RECEIVED OCD JUN 21 2022 PM3:29

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge, Cameron Pruitt

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:

Jack Atkins — Jackie D. Atkins — 6/20/2022

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4636-POD1 (TW-1)	POD NO. 1 (TW-1)	TRN NO. 726474
LOCATION Expl 24.31.25.343	WELL TAG ID NO. —	PAGE 2 OF 2

Mike A. Hamman, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 726474
File Nbr: C 04636
Well File Nbr: C 04636 POD1

Jun. 21, 2022

DALE WOODALL
DEVON ENERGY
6488 7 RIVERS HWY
ARTESIA, NM 88210

Greetings:

The above numbered permit was issued in your name on 05/26/2022.

The Well Record was received in this office on 06/21/2022, stating that it had been completed on 06/08/2022, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 05/26/2023.

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

Sincerely,

Maret Amaral
(575)622-6521

drywell

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD 1 (TW-1)	N/A	C-4633

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Devon Energy	575-748-1838

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6488 7 Rivers Hwy	Artesia	NM	88210

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	10	51.34	N
	LONGITUDE	103	45	17.05	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

NE NW NW Sec.35 T24S R31S NMPM

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
6/2/2022	6/2/2022	Temporary Well	±55	N/A

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): N/A

DATE STATIC MEASURED: 6/6/2022

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	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)
0	55	±6.5	Boring-HSA	--	--	--	--

OSE DII JUN 10 2022 AM 9:23

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4633-POD1 (TW-1)	POD NO. 1	TRN NO. 726271
LOCATION Expl- 24.31.35.211	WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	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)
0	4	4	Sand, Fine-grained, poorly graded, 2.5 YR 3/6, Dark Red	Y ✓ N	
4	55	51	Sand, Fine-grained, poorly graded, with Caliche, 7.5 YR 7/4, Pink	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:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

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: Temporary well material removed and soil boring backfilled using drill cuttings from total depth to ten feet below ground surface(bgs), then hydrated bentonite chips ten feet bgs to surface.
17
Cotton Draw Unit 213

OSE DIT JUN 10 2022 AM9:23

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge, Cameron Pruitt

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:

Jack Atkins — Jackie D. Atkins — 6/9/2022

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. C-4633-POD1 (TW-1)	POD NO. 1	TRN NO. 726271	
LOCATION Expl - 24.31.35.211		WELL TAG ID NO. —	PAGE 2 OF 2

Mike A. Hamman, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 726271
File Nbr: C 04633
Well File Nbr: C 04633 POD1

Jun. 10, 2022

DALE WOODALL
DEVON ENERGY
6488 7 RIVERS HWY
ARTESIA, NM 88210

Greetings:

The above numbered permit was issued in your name on 05/24/2022.

The Well Record was received in this office on 06/10/2022, stating that it had been completed on 06/02/2022, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 05/24/2023.

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

Sincerely,

Maret Amaral
(575)622-6521

drywell

U.S. Fish and Wildlife Service
National Wetlands Inventory

02 - Watercourse - Cotton Draw Unit #205H
39,808 feet away (7.5 miles)

July 17, 2023

Wetlands

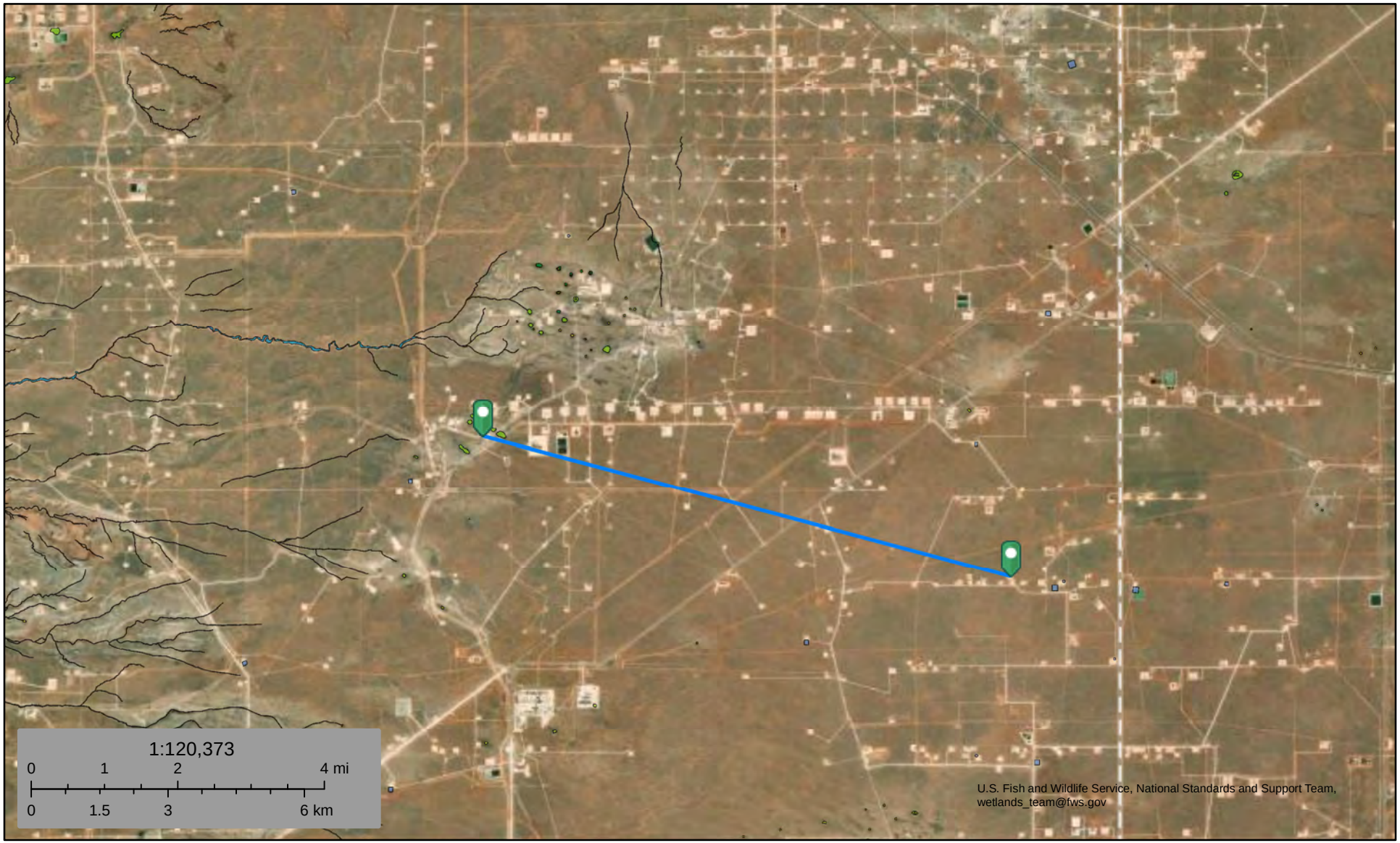
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

03 - Lakebed - Cotton Draw Unit #205H
33,353 feet away (6.3 miles)



July 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.

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

4 - Nearest Residence

2,733 feet away (4.3 miles away)

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
21068	C 04643 POD1	4	2	2	05	23S	27E	619200	3561279

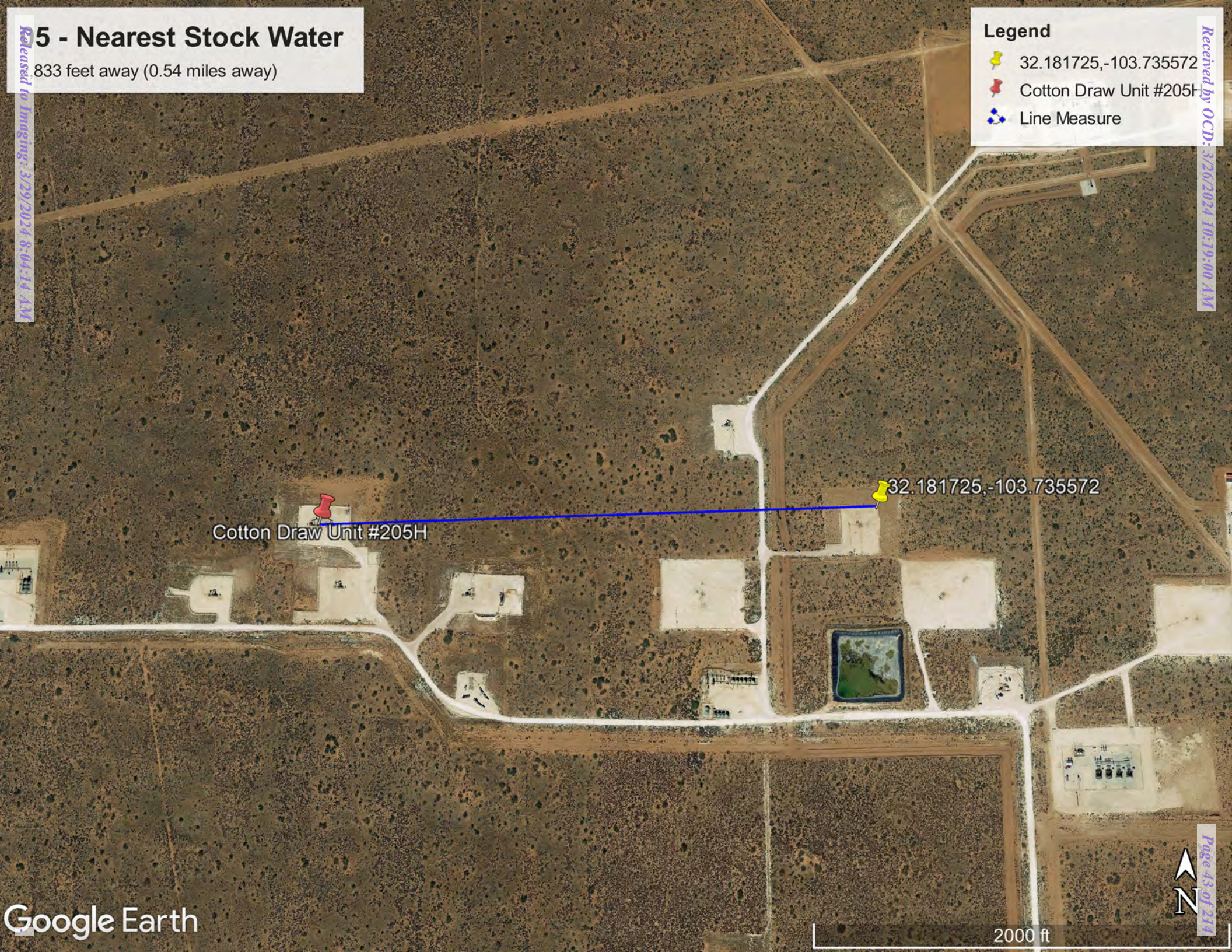
Driller License:	1755	**Driller Company:**	HUNGRY HORSE, LLC.		
Driller Name:	JOHN NORRIS				
Drill Start Date:	06/06/2022	**Drill Finish Date:**	06/20/2022	**Plug Date:**	
Log File Date:	08/19/2022	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	0 GPM
Casing Size:	6.00	**Depth Well:**	305 feet	**Depth Water:**	135 feet

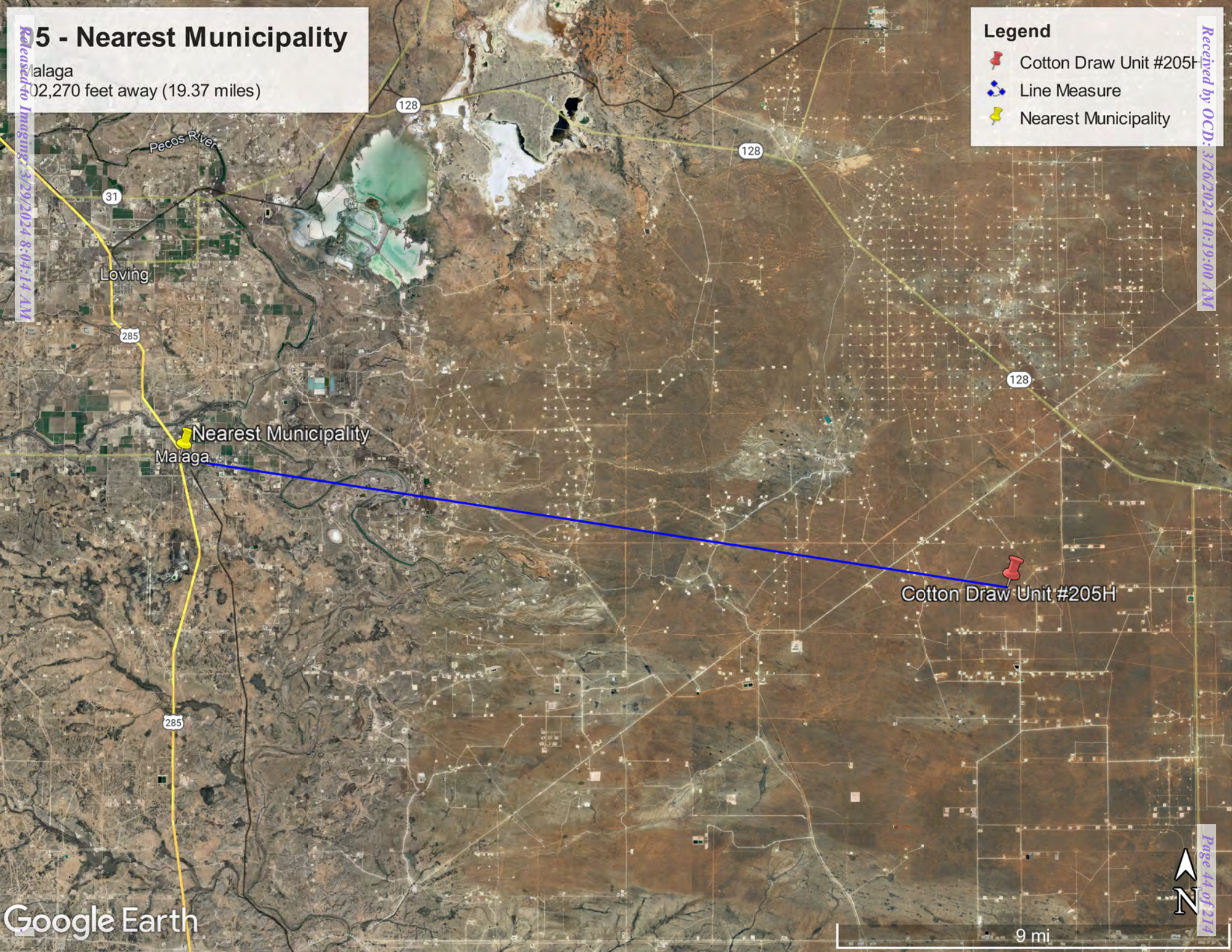
Water Bearing Stratifications:	Top	Bottom	Description
	110	140	Sandstone/Gravel/Conglomerate
	140	160	Shale/Mudstone/Siltstone
	220	275	Shale/Mudstone/Siltstone

Casing Perforations:	Top	Bottom
	225	305

5 - Nearest Stock Water

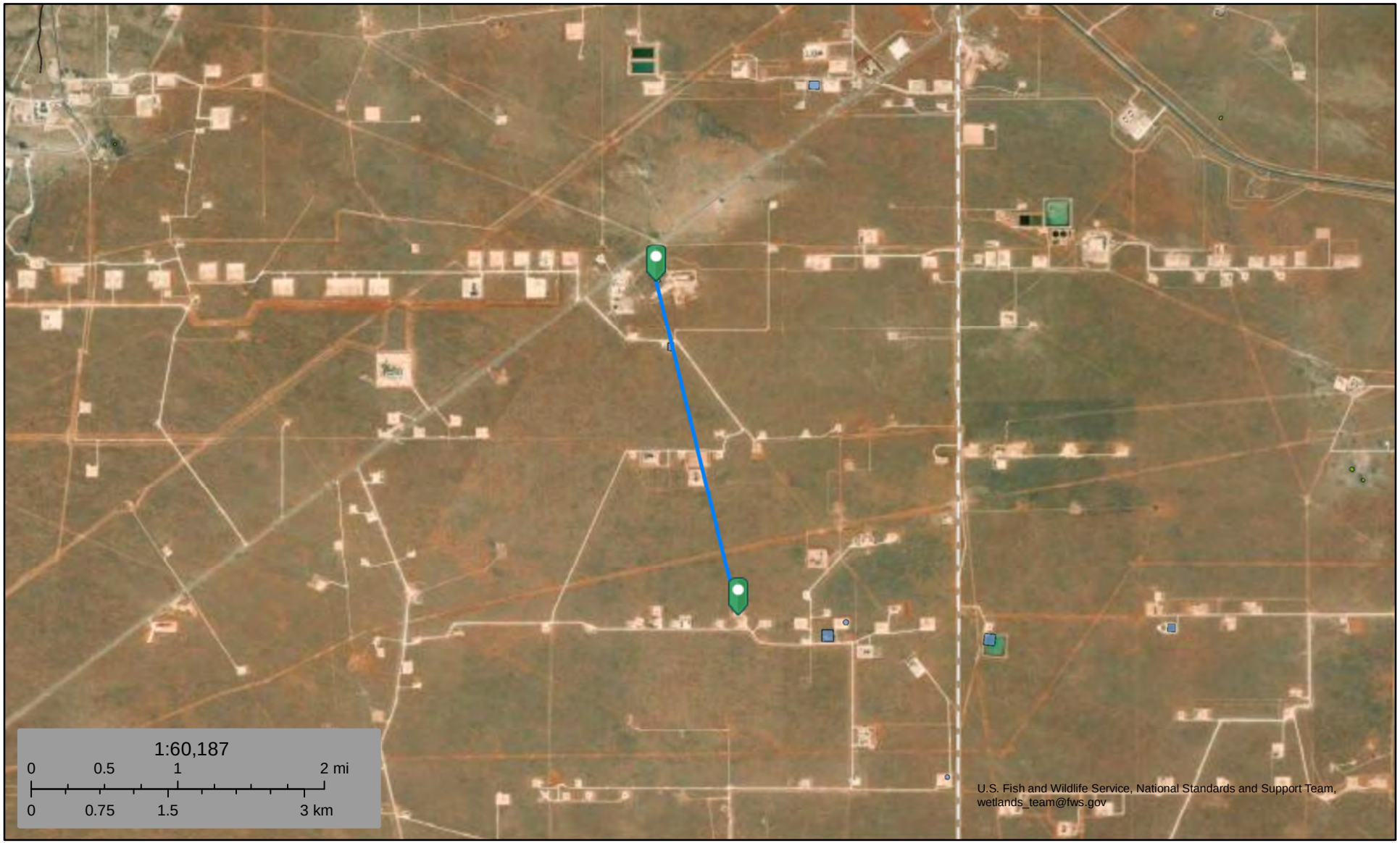
833 feet away (0.54 miles away)





U.S. Fish and Wildlife Service
National Wetlands Inventory

07 - Wetland - Cotton Draw Unit #205H
10,449 feet away (1.98 miles)



July 17, 2023

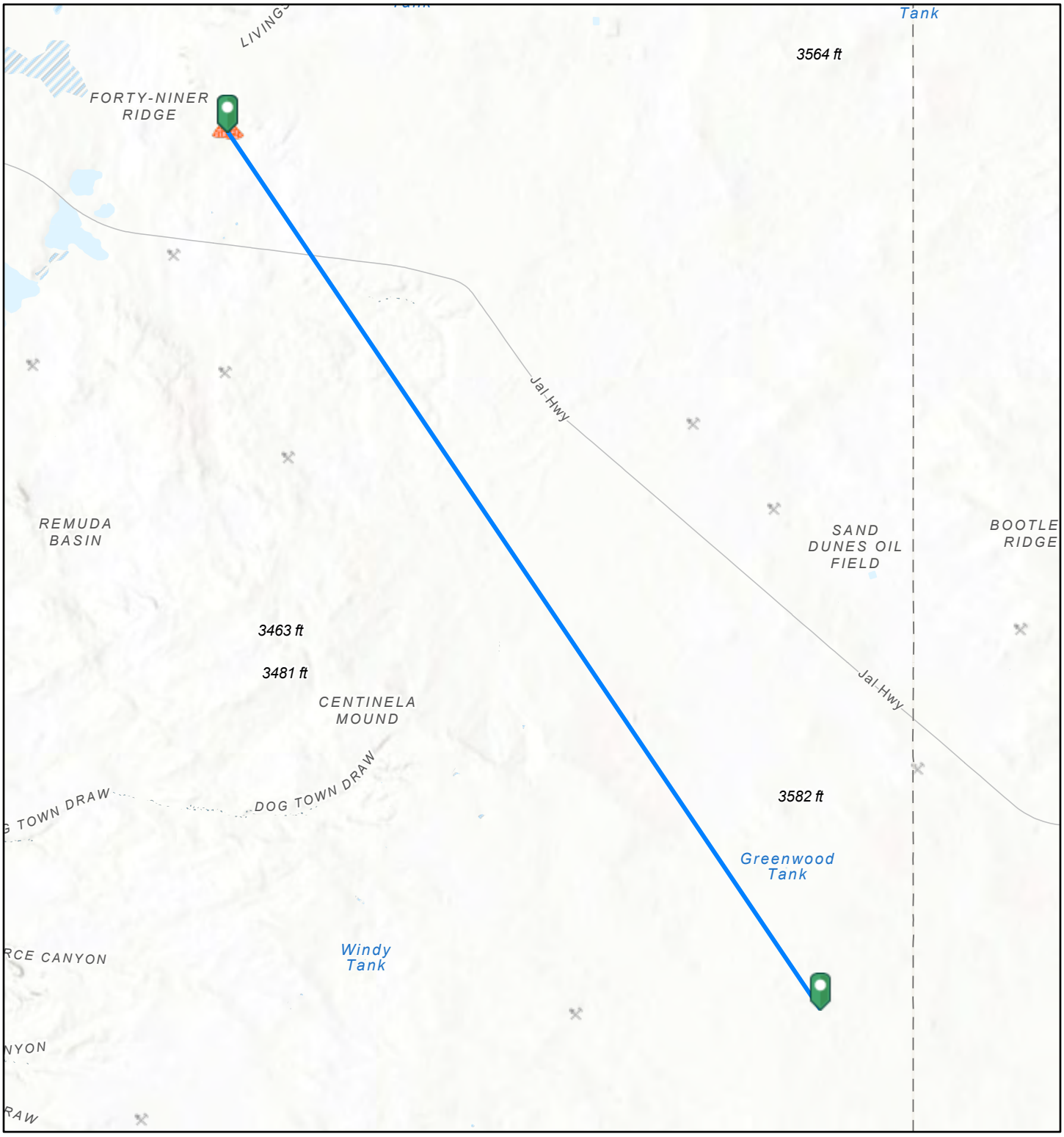
Wetlands

- 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.

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

Cotton Draw Unit #205H Subsurface Mine 14.5 Miles



12/28/2023, 10:12:35 AM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

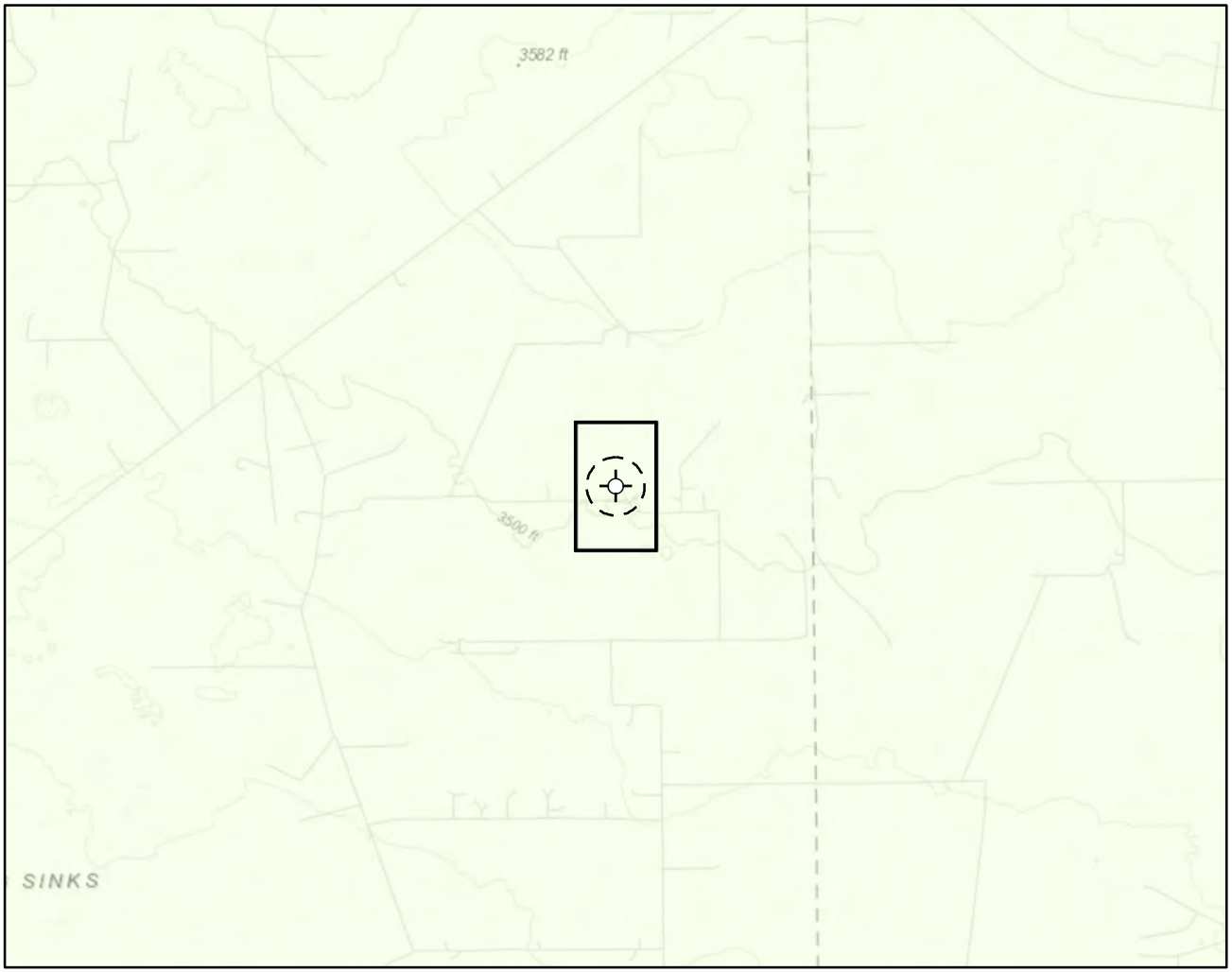
Registered Mines

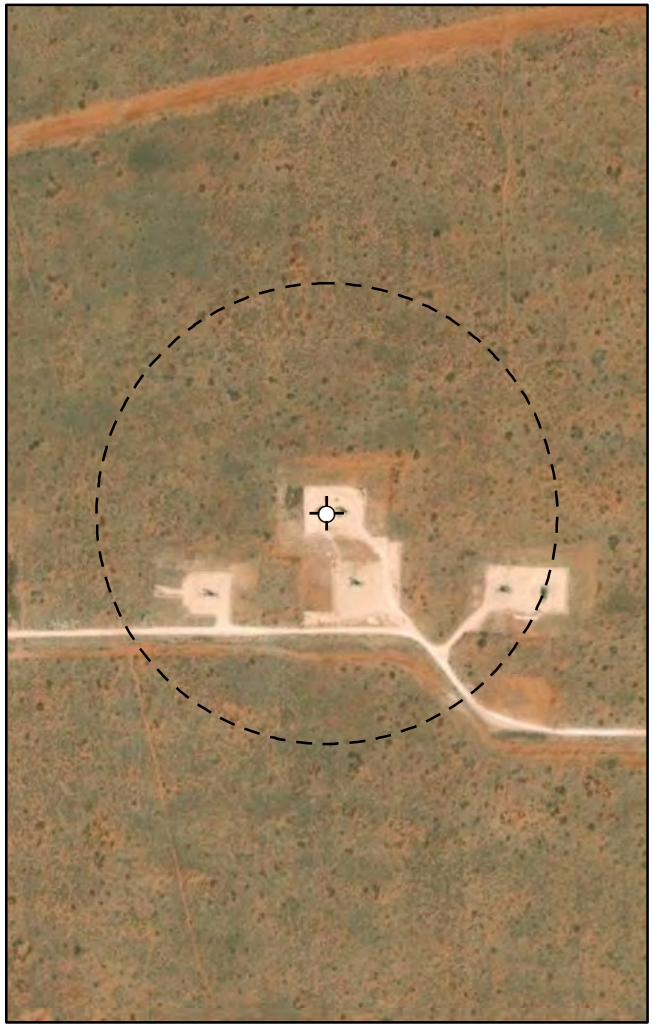
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Potash

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

EMNRD MMD GIS Coordinator

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





Karst Potential

- Critical
- High
- Medium
- Low

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

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.181492, -103.744724

NAD 1983 UTM Zone 13N
Date: Jul 18/23

N

Karst Potential Schematic
Cotton Draw Unit #205H

FIGURE:
X

devon

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

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

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2023\23E-04191- Cotton Draw Unit #205H\Figure X Karst Potential Schematic Cotton Draw Unit #205H (23E-04191).mxd

Cotton Draw Unit #205H

Distance to nearest High Karst area

Legend

32.181492, -103.744724

36,307 Feet/6.88 Miles

High

32.181492, -103.744724

Google Earth

N

6 mi

National Flood Hazard Layer FIRMette

FEMA

103°45'W 32°11'9"N

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

1:6,000

103°44'22"W 32°10'38"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/17/2023 at 7:01 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.

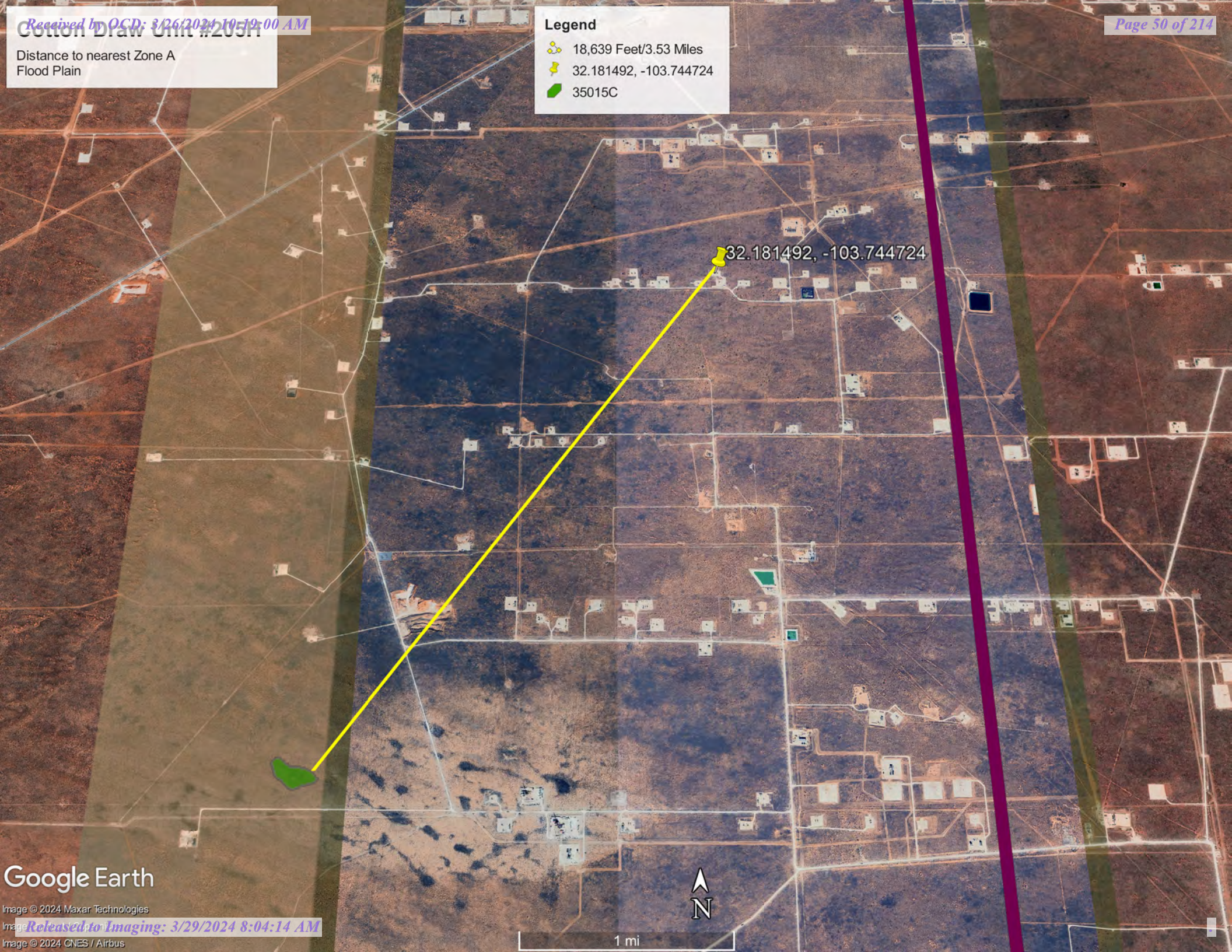
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory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

Cotton Draw Unit #205H

Distance to nearest Zone A
Flood Plain

Legend

- 18,639 Feet/3.53 Miles
- 32.181492, -103.744724
- 35015C



United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Eddy Area, New Mexico

July 17, 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.

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:7,860 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 18, Sep 8, 2022

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	269.2	100.0%
Totals for Area of Interest		**269.2**	**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.

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

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

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

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

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

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

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

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

Eddy Area, New Mexico

BB—Berino complex, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w43
Elevation: 2,000 to 5,700 feet
Mean annual precipitation: 5 to 15 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Berino and similar soils: 60 percent
Pajarito and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berino

Setting

Landform: Plains, fan piedmonts
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 17 inches: fine sand
H2 - 17 to 58 inches: sandy clay loam
H3 - 58 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

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

Description of Pajarito

Setting

Landform: Dunes, plains, interdunes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 72 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: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Pajarito

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

Wink

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

Cacique

Percent of map unit: 4 percent
Ecological site: R070BD004NM - Sandy
Hydric soil rating: No

Kermit

Percent of map unit: 3 percent
Ecological site: R070BD005NM - Deep Sand
Hydric soil rating: No

Custom Soil Resource Report

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Eddy Area, New Mexico

July 17, 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.

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Information for All Uses

Ecological Sites

Individual soil map unit components can be correlated to a particular ecological site. The Ecological Site Assessment section includes ecological site descriptions, plant growth curves, state and transition models, and selected National Plants database information.

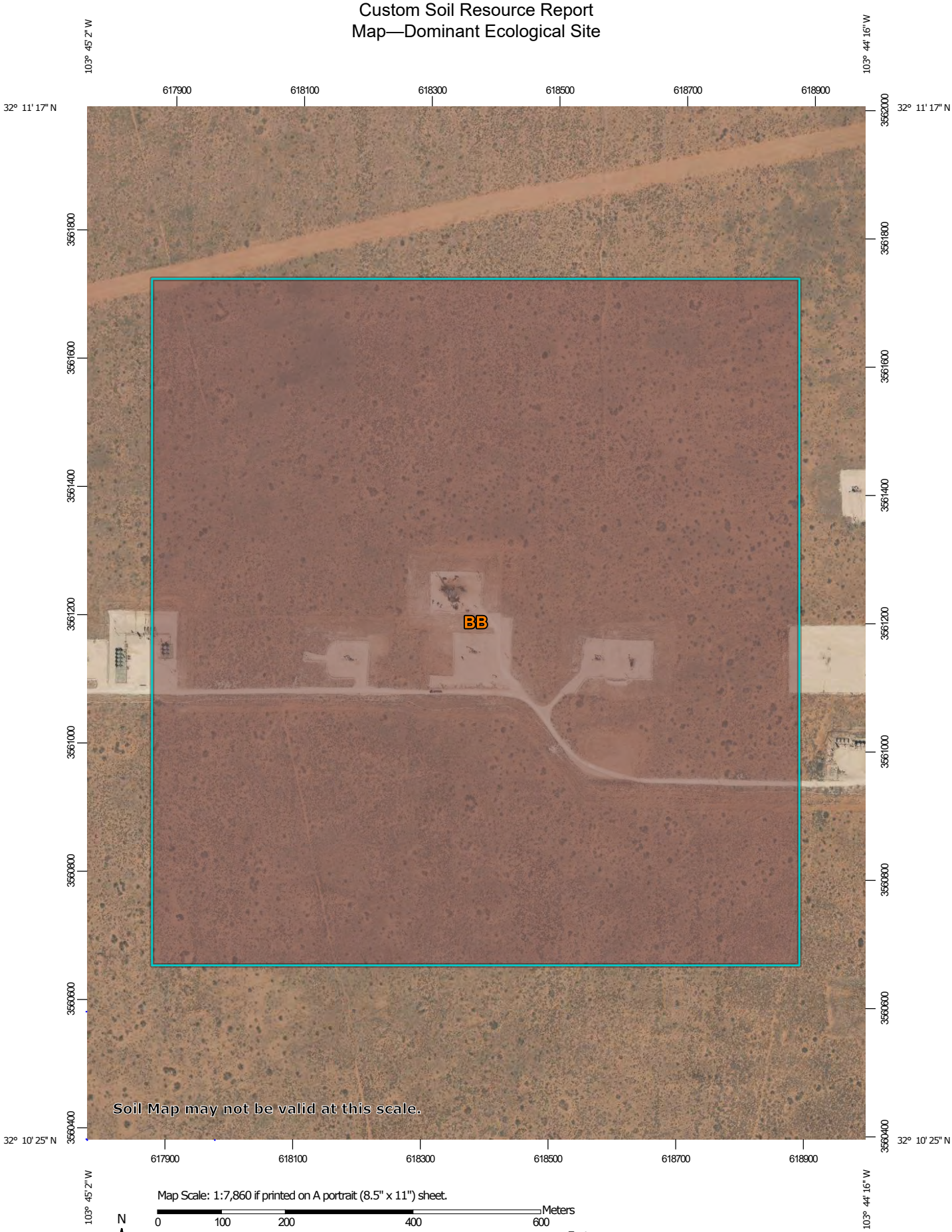
All Ecological Sites —

An "ecological site" is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. For example, the hydrology of the site is influenced by development of the soil and plant community. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production.

An ecological site name provides a general description of a particular ecological site. For example, "Loamy Upland" is the name of a rangeland ecological site. An "ecological site ID" is the symbol assigned to a particular ecological site.

The map identifies the dominant ecological site for each map unit, aggregated by dominant condition. Other ecological sites may occur within each map unit. Each map unit typically consists of one or more components (soils and/or miscellaneous areas). Each soil component is associated with an ecological site. Miscellaneous areas, such as rock outcrop, sand dunes, and badlands, have little or no soil material and support little or no vegetation and therefore are not linked to an ecological site. The table below the map lists all of the ecological sites for each map unit component in your area of interest.

Custom Soil Resource Report
Map—Dominant Ecological Site



MAP LEGEND

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

Soils

Soil Rating Polygons
- R070BD003NM
- Not rated or not available

Soil Rating Lines
- R070BD003NM
- Not rated or not available

Soil Rating Points
- R070BD003NM
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 18, Sep 8, 2022

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

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

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

Table—Ecological Sites by Map Unit Component

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	Berino (60%)	R070BD003NM — Loamy Sand	269.2	100.0%
		Pajarito (25%)	R070BD003NM — Loamy Sand		
		Cacique (4%)	R070BD004NM — Sandy		
		Pajarito (4%)	R070BD003NM — Loamy Sand		
		Wink (4%)	R070BD003NM — Loamy Sand		
		Kermit (3%)	R070BD005NM — Deep Sand		
Totals for Area of Interest				**269.2**	**100.0%**

References

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

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Cotton Draw Unit #205H Geology

12/28/2023, 10:09:39 AM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

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

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

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

APPENDIX C – Daily Field and Sampling Reports

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	8/22/2023
Site Location Name:	Cotton Draw Unit #205H	Report Run Date:	8/22/2023 10:55 PM
Client Contact Name:	Jim Raley	API #:	30-015-42071
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	8/22/2023 8:15 AM
Departed Site	8/22/2023 3:32 PM

Field Notes

14:56 Completed safety paperwork and initial line locate on site

14:56 On site to continue delineation efforts

14:57 Obtained BH23-03 to 11 all at 0 and 2'.

14:57 Results of all samples taken seems to indicate that it may just be only the pad that is contaminated.

14:58 Upon conversing with pm, we will switch from getting 0 and 2' samples and in turn collect 0 and 1' samples to address contamination.

14:59 Pad is only 6-8" thick. Immediately under pad is sand that cleans up immediately. This is why we will switch to 1' samples to save in the end total cubic yardage to take out.

16:50 BH23-08 step out from 07
BH23-09 step out between 05/06
BH23-10 step out from 04 to north
BH23-11 step out from 04 to east

16:50 Field screens for BH23-03, 05, and 08 are barely over limit. Would be interested to see what lab says to limit further delineation and/or future excavation.

Daily Site Visit Report

Next Steps & Recommendations

1 Continue delineation

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: Southwest
	
BH23-03 Immediately southeast of west pump jack	BH23-04 immediately northeast of western pump jack
Viewing Direction: South	**Viewing Direction**: South
	
BH23-05 immediately north	BH23-06 immediately north

Daily Site Visit Report

Viewing Direction: Southeast

BH23-07 immediately Northwest of west pump jack

Viewing Direction: Southeast

BH23-08 North of 07

Viewing Direction: South

BH23-09 north of 05

Viewing Direction: Southwest

BH23-10 north of 04

Daily Site Visit Report

Viewing Direction: Southwest

BH23-11 Northeast of 04

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature: 

Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	1/24/2024
Site Location Name:	Cotton Draw Unit #205H	Report Run Date:	1/25/2024 12:29 AM
Client Contact Name:	Dale Woodall	API #:	30-015-42071
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	1/24/2024 8:09 AM
Departed Site	1/24/2024 2:19 PM

Field Notes

8:10 Arrived on site and completed field safety briefing.

13:38 Finished field screening. All samples clean at 2'. BH24-21 and BH21-23 high on EC at 0'.

14:19 Prepped and jarred soil samples for lab analysis.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Placard

Viewing Direction: East

BH24-21 collected at 0’ & 2’

Viewing Direction: South

B H24-22 collected at 0’ and 2’

Viewing Direction: South

BH24-23 collected at 0’ and 2’

Daily Site Visit Report

Viewing Direction: North

Site

Viewing Direction: Northwest

NE corner

Viewing Direction: East

North edge of site

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brenda Almanza

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	12/6/2023
Site Location Name:	Cotton Draw Unit #205H	Report Run Date:	12/6/2023 7:10 PM
Client Contact Name:	Dale Woodall	API #:	30-015-42071
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	12/6/2023 8:15 AM
Departed Site	12/6/2023 12:10 PM

Field Notes

8:40 Arrived on site, examined site for hazards and completed safety assessment for job and documents.

9:40 Collected 5 point composite samples at 200 sq feet or less, labeled: BES23-01 through BES23-04 at 1 foot at excavation base and WES23-01 and -02 at 0-1 foot along walls.

11:17 Field screened all samples for TPH with Dexsil Petroflag, chlorides with EC meter and volatiles with PID. All screened below 100 foot criteria limits and additionally below 51-100 foot criteria limits.

11:30 Documented all work performed. Prepared samples for laboratory in jars and preserved on ice.

Next Steps & Recommendations

1 Send samples to lab and collect lab data

2 Backfill

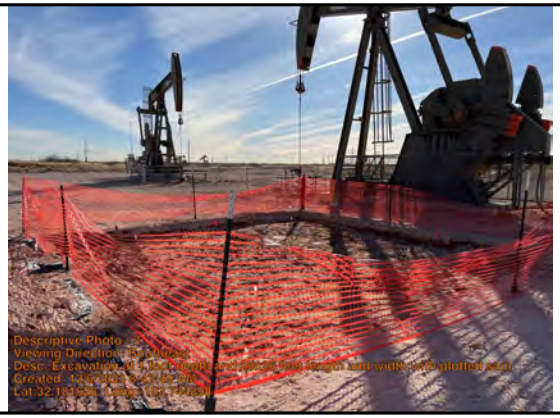
3 Complete closure report

Daily Site Visit Report

Site Photos

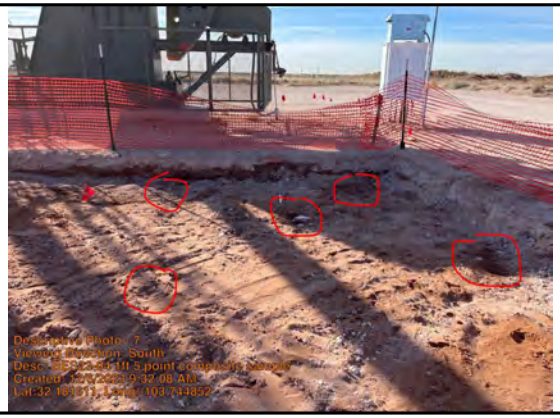
Viewing Direction: North	**Viewing Direction**: Northeast
	
Site information placard	Excavation at 1 foot depth and 25x26 feet length and width with plotted sampling points with white flagging

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: North
	
Excavation at 1 foot depth and 25x26 feet length and width with plotted sampling points with white flagging	BES23-01 1ft 5 point composite sample
Viewing Direction: North	**Viewing Direction**: South
	
BES23-02 1ft 5 point composite sample	BES23-03 1ft 5 point composite sample

Daily Site Visit Report

Viewing Direction: South



BES23-04 1ft 5 point composite sample

Viewing Direction: Northwest

WES23-01 0-1ft 5 point composite sample

Viewing Direction: Southeast

WES23-02 0-1ft 5 point composite sample

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature: 

APPENDIX D – Notifications

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Thursday, April 16, 2020 4:10 PM
To: Natalie Gordon
Subject: Fwd: NRM2007031081: Cotton Draw Unit #205H 48-hr Notification of Confirmation Sampling

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Thu, Apr 16, 2020 at 4:09 PM
Subject: NRM2007031081: Cotton Draw Unit #205H 48-hr Notification of Confirmation Sampling
To: Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>, Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>, <Jamos@blm.gov>, Kelsey <KWade@blm.gov>, <blm_nm_cfo_spill@blm.gov>
Cc: <Lupe.Carrasco@dvn.com>, <amanda.davis@dvn.com>, <wesley.mathews@dvn.com>, <tom.bynum@dvn.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled remediation field activities and confirmatory sampling to be conducted at Cotton Draw Unit #205H for the release that occurred on February 24, 2020, incident tracking # NRM2007031081.

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

On Wednesday, April 22, 2020 at approximately 8:00 a.m., Monica Peppin of Vertex will be onsite to guide remediation activities. She will begin collecting confirmatory sampling as the remediation activities finish up. Monica can be reached at 575-361-9880. If you need directions to the site, please do not hesitate to contact her. If you have any questions or concerns regarding this notification, please give me a call at 505-506-0040.

Thank you,
Natalie

Natalie Gordon
Project Manager

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

P 575.725.5001 ext 709
C 505.506.0040
F

www.vertex.ca

Monica Peppin

From: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Sent: February 24, 2023 7:52 AM
To: Michael Moffitt; Monica Peppin; Dhugal Hanton
Cc: Bratcher, Michael, EMNRD; Nobui, Jennifer, EMNRD; Harimon, Jocelyn, EMNRD
Subject: RE: FW: [EXTERNAL] Devon: Cotton Draw #205H [DTGW Variance Inquiry]

Michael and Monica,

The borehole located 0.57 miles away from the release area is just outside of the ½ mile requirement. The release is not within a 100-year floodplain. Also, the release is located in low karst and depth to groundwater appears to be >100 feet. The variance request for depth to groundwater of 51'-100' is approved. Please include this e-mail correspondence in the remediation and/or closure report.

Regards,

Robert Hamlet ● Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Sent: Thursday, February 23, 2023 3:10 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Subject: FW: FW: [EXTERNAL] Devon: Cotton Draw #205H [DTGW Variance Inquiry]

Jocelyn Harimon ● Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
1220 South St. Francis Drive | Santa Fe, NM 87505
(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov
http:// **www.emnrd.nm.gov**

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Thursday, February 23, 2023 2:52 PM

To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: mmoffitt@vertex.ca
Subject: Fwd: FW: [EXTERNAL] Devon: Cotton Draw #205H [DTGW Variance Inquiry]

All,

Below is the following email. If we can please get assistance from the regulator that will be over the follow report, we would appreciate it.

Thank you,

Monica

---------- Forwarded message ---------
From: **Monica Peppin** <mpeppin@vertex.ca>
Date: Thu, Feb 23, 2023 at 2:50 PM
Subject: FW: [EXTERNAL] Devon: Cotton Draw #205H [DTGW Variance Inquiry]
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>

From: Venegas, Victoria, EMNRD <Victoria.Venegas@emnrd.nm.gov>
Sent: February 23, 2023 10:35 AM
To: Michael Moffitt <MMoffitt@vertex.ca>
Cc: Monica Peppin <mpeppin@vertex.ca>
Subject: RE: [EXTERNAL] Devon: Cotton Draw #205H [DTGW Variance Inquiry]

Good morning Mr. Moffitt,

I am no longer working with the Incident Group. For all your release-related questions, contact the Incident Group specialists. Here is the OCD's contact list:

https://www.emnrd.nm.gov/ocd/wp-content/uploads/sites/6/OCD-Contact-List-of-01-23-2023.pdf

Please let me know if you have any additional questions.

Regards,

Victoria Venegas ● Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

(575) 909-0269 | Victoria.Venegas@emnrd.nm.gov

https://www.emnrd.nm.gov/ocd/

From: Michael Moffitt <MMoffitt@vertex.ca>
Sent: Wednesday, February 22, 2023 3:46 PM
To: Venegas, Victoria, EMNRD <Victoria.Venegas@emnrd.nm.gov>
Cc: Monica Peppin <mpeppin@vertex.ca>
Subject: [EXTERNAL] Devon: Cotton Draw #205H [DTGW Variance Inquiry]

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

Victoria,

I have attached a hyperlink below to incident Tracking Number: NRM2007031081. This closure report was reviewed by you in 2020 and was denied due to the trend map for Chevron/Texaco 2004 not being an accepted source for DTGW determination. A copy of the denial email has also been included. Since then, Devon advanced a test boring through Atkins Engineering to 55-foot BGS (POD C4633) within 0.57 miles of the location. The well log has also been included with this email. The NMOSE has not updated the information yet on their web-based GIS portal.

Regarding POD C4633, I would like to note that I fully understand this new boring is still outside of the half-mile radius required under NMAC 19.15.29 closure criterium. Would it be possible, however, to receive a DTGW variance for closure with the boring being .57 miles away from incident NRM2007031081? Lastly, if the variance is granted for the slight deviation in distance to the boring, Vertex would revise the report to reflect the change and would include all necessary documentation needed for Devon to re-submit closure to NMOCD.

Your feedback on this inquiry is greatly appreciated and I look forward to hearing back from you.

https://ocdimage.emnrd.nm.gov/Imaging/FileStore/artesia/nf/20200716/nrm2007031081%20_07_16_2020_03_12_38.pdf

Regards,

Michael Moffitt

Michael Moffitt
Manager Environment

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

P 575.725.5001 Ext.705
C 575.988.2681
F

www.vertex.ca

Gmail

Dhugal Hanton <vertexresourcegroupusa@gmail.com>

(no subject)

1 message

Dhugal Hanton <vertexresourcegroupusa@gmail.com> Fri, Dec 1, 2023 at 9:22 AM
To: "Wells, Shelly, EMNRD" <shelly.wells@emnrd.nm.gov>, "CFO_Spill, BLM_NM" <blm_nm_cfo_spill@blm.gov>, "Enviro, OCD, EMNRD" <OCD.Enviro@emnrd.nm.gov>

All,

Please accept this email as notification that Vertex Resource Services, on behalf of Devon Resources, has scheduled a Confirmation Sampling notice to be conducted at the following site.

Site Name: COTTON DRAW UNIT #205H
Operator: Devon
Site Coordinates: 32.18145, -103.74474
API: 30-015-42071
Release
11.17.2014, Incident ID: NAB1432826765
and,
02.24.2020, Incident ID: nRM2007031081

On Monday December 6, 2023 through Tuesday December 12, 2023, Vertex will be on-site to conduct confirmation sampling. If you have any questions regarding this notification, please call at 346-814-1413.

Thanks,

Kent Stallings P.G.
Senior Geologist
Vertex Resource Services Inc.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 ext 706
C 346.814.1413

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 29, 2023

Kent Stallings

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Cotton Draw Unit 205H OrderNo.: 2308C21

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 4 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,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2308C21**
Date Reported: **8/29/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-01 0.0'
Project: Cotton Draw Unit 205H
Collection Date: 8/21/2023 1:00:00 PM
Lab ID: 2308C21-001 **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 8:00:51 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	8/24/2023 8:00:51 PM
Surr: DNOP	106	69-147		%Rec	1	8/24/2023 8:00:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/24/2023 6:17:45 PM
Surr: BFB	96.2	15-244		%Rec	1	8/24/2023 6:17:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	8/24/2023 6:17:45 PM
Toluene	ND	0.049		mg/Kg	1	8/24/2023 6:17:45 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/24/2023 6:17:45 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/24/2023 6:17:45 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	8/24/2023 6:17:45 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	200	60		mg/Kg	20	8/25/2023 7:48:22 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308C21**
Date Reported: **8/29/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-01 2.0'
Project: Cotton Draw Unit 205H
Collection Date: 8/21/2023 1:10:00 PM
Lab ID: 2308C21-002 **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	10		mg/Kg	1	8/24/2023 8:11:54 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/24/2023 8:11:54 PM
Surr: DNOP	96.8	69-147		%Rec	1	8/24/2023 8:11:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/24/2023 6:41:22 PM
Surr: BFB	93.8	15-244		%Rec	1	8/24/2023 6:41:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	8/24/2023 6:41:22 PM
Toluene	ND	0.047		mg/Kg	1	8/24/2023 6:41:22 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/24/2023 6:41:22 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/24/2023 6:41:22 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	8/24/2023 6:41:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	95	60		mg/Kg	20	8/25/2023 8:00:46 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308C21**
Date Reported: **8/29/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-02 0.0'
Project: Cotton Draw Unit 205H
Collection Date: 8/21/2023 1:20:00 PM
Lab ID: 2308C21-003 **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	9.8		mg/Kg	1	8/24/2023 8:22:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/24/2023 8:22:53 PM
Surr: DNOP	98.3	69-147		%Rec	1	8/24/2023 8:22:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 7:05:00 PM
Surr: BFB	95.0	15-244		%Rec	1	8/24/2023 7:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/24/2023 7:05:00 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 7:05:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 7:05:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/24/2023 7:05:00 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 7:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	790	60		mg/Kg	20	8/25/2023 8:13:11 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308C21**
Date Reported: **8/29/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-02 2.0'
Project: Cotton Draw Unit 205H
Collection Date: 8/21/2023 1:30:00 PM
Lab ID: 2308C21-004 **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	9.2		mg/Kg	1	8/24/2023 8:33:52 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/24/2023 8:33:52 PM
Surr: DNOP	98.9	69-147		%Rec	1	8/24/2023 8:33:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/24/2023 7:28:33 PM
Surr: BFB	95.1	15-244		%Rec	1	8/24/2023 7:28:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/24/2023 7:28:33 PM
Toluene	ND	0.048		mg/Kg	1	8/24/2023 7:28:33 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/24/2023 7:28:33 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/24/2023 7:28:33 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/24/2023 7:28:33 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	300	60		mg/Kg	20	8/25/2023 8:25:35 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308C21**

29-Aug-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

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			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308C21**

29-Aug-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

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: **MB-77049**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77049**	RunNo: **99199**
Prep Date: **8/23/2023**	Analysis Date: **8/25/2023**	SeqNo: **3617816** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		114	69	147			

Sample ID: **LCS-77049**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77049**	RunNo: **99199**
Prep Date: **8/23/2023**	Analysis Date: **8/25/2023**	SeqNo: **3617819** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.7		5.000		115	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308C21**

29-Aug-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **lcs-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: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **GS99204**	RunNo: **99204**
Prep Date:	Analysis Date: **8/24/2023**	SeqNo: **3618212** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		198	15	244			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **GS99204**	RunNo: **99204**
Prep Date:	Analysis Date: **8/24/2023**	SeqNo: **3618213** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	920		1000		92.2	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308C21**

29-Aug-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

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			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Devon Energy | Work Order Number: 2308C21 | RcptNo: 1

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

Completed By: Tracy Casarrubias 8/23/2023 8:31:23 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° C to 6.0°C	Yes ☑	No ☐	NA ☐	
5. Sample(s) in proper container(s)?	Yes ☑	No ☐		
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐		
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐		
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐	
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑	
10. Were any sample containers received broken?	Yes ☐	No ☑		
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?	
13. Is it clear what analyses were requested?	Yes ☑	No ☐		
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JH 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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes	Yogi		

Chain-of-Custody Record

Client: 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 Days

Project Name: Cotton Draw Unit 205H

Project #: 23E-04191

Project Manager: Kent Stallings

Sampler: AH

On Ice: ☑ Yes ☐ No 409i

# of Coolers: 1

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2308C21
8/21/23	1300	Soil	BH23-01 0.0'	4oz	ICE	001
	1310		BH23-01 2.0'			002
	1320		BH23-02 0.0'			003
	1330		BH23-02 2.0'			004

Analysis Request

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

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					8/22/23	930
8/22/23	1900			courier	8/23/23	7:30

Remarks: CC: KStallings@vertexca
aharris@vertexca

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

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

September 08, 2023

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL:
FAX:

RE: Cotton Draw Unit 205 H OrderNo.: 2308D04

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 18 sample(s) on 8/24/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-03 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 9:00:00 AM
Lab ID: 2308D04-001 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	35	9.5		mg/Kg	1	8/31/2023 7:53:42 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2023 7:53:42 AM
Surr: DNOP	105	69-147		%Rec	1	8/31/2023 7:53:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	8/30/2023 12:22:30 PM
Surr: BFB	94.1	15-244		%Rec	1	8/30/2023 12:22:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	8/30/2023 12:22:30 PM
Toluene	ND	0.046		mg/Kg	1	8/30/2023 12:22:30 PM
Ethylbenzene	ND	0.046		mg/Kg	1	8/30/2023 12:22:30 PM
Xylenes, Total	ND	0.093		mg/Kg	1	8/30/2023 12:22:30 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/30/2023 12:22:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	170	60		mg/Kg	20	8/29/2023 10:56:27 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-03 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 9:15:00 AM
Lab ID: 2308D04-002 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/29/2023 9:15:42 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/29/2023 9:15:42 PM
Surr: DNOP	87.4	69-147		%Rec	1	8/29/2023 9:15:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/30/2023 12:46:03 PM
Surr: BFB	100	15-244		%Rec	1	8/30/2023 12:46:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	8/30/2023 12:46:03 PM
Toluene	ND	0.047		mg/Kg	1	8/30/2023 12:46:03 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/30/2023 12:46:03 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/30/2023 12:46:03 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/30/2023 12:46:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	8/29/2023 11:08:52 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 9:30:00 AM
Lab ID: 2308D04-003 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	200	10		mg/Kg	1	8/31/2023 9:05:27 AM
Motor Oil Range Organics (MRO)	230	50		mg/Kg	1	8/31/2023 9:05:27 AM
Surr: DNOP	113	69-147		%Rec	1	8/31/2023 9:05:27 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/30/2023 1:09:40 PM
Surr: BFB	94.8	15-244		%Rec	1	8/30/2023 1:09:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/30/2023 1:09:40 PM
Toluene	0.060	0.049		mg/Kg	1	8/30/2023 1:09:40 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/30/2023 1:09:40 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/30/2023 1:09:40 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/30/2023 1:09:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	500	60		mg/Kg	20	8/29/2023 11:21:16 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 9:45:00 AM
Lab ID: 2308D04-004 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/29/2023 9:37:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/29/2023 9:37:35 PM
Surr: DNOP	87.8	69-147		%Rec	1	8/29/2023 9:37:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/30/2023 1:33:18 PM
Surr: BFB	94.1	15-244		%Rec	1	8/30/2023 1:33:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/30/2023 1:33:18 PM
Toluene	ND	0.047		mg/Kg	1	8/30/2023 1:33:18 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/30/2023 1:33:18 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/30/2023 1:33:18 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	8/30/2023 1:33:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	280	60		mg/Kg	20	8/29/2023 11:58:30 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-05 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 10:00:00 AM
Lab ID: 2308D04-005 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	240	9.8		mg/Kg	1	8/31/2023 9:29:19 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 9:29:19 AM
Surr: DNOP	112	69-147		%Rec	1	8/31/2023 9:29:19 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/30/2023 1:56:58 PM
Surr: BFB	95.3	15-244		%Rec	1	8/30/2023 1:56:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/30/2023 1:56:58 PM
Toluene	ND	0.049		mg/Kg	1	8/30/2023 1:56:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/30/2023 1:56:58 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/30/2023 1:56:58 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/30/2023 1:56:58 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	3300	150		mg/Kg	50	8/30/2023 8:25:34 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-05 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 10:15:00 AM
Lab ID: 2308D04-006 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/29/2023 9:59:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/29/2023 9:59:31 PM
Surr: DNOP	89.2	69-147		%Rec	1	8/29/2023 9:59:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/30/2023 2:20:39 PM
Surr: BFB	101	15-244		%Rec	1	8/30/2023 2:20:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/30/2023 2:20:39 PM
Toluene	ND	0.048		mg/Kg	1	8/30/2023 2:20:39 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/30/2023 2:20:39 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/30/2023 2:20:39 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	8/30/2023 2:20:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	330	59		mg/Kg	20	8/30/2023 12:23:19 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 10:30:00 AM
Lab ID: 2308D04-007 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	470	9.7		mg/Kg	1	8/31/2023 9:53:10 AM
Motor Oil Range Organics (MRO)	440	48		mg/Kg	1	8/31/2023 9:53:10 AM
Surr: DNOP	115	69-147		%Rec	1	8/31/2023 9:53:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/30/2023 2:44:19 PM
Surr: BFB	101	15-244		%Rec	1	8/30/2023 2:44:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	8/30/2023 2:44:19 PM
Toluene	ND	0.048		mg/Kg	1	8/30/2023 2:44:19 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/30/2023 2:44:19 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/30/2023 2:44:19 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/30/2023 2:44:19 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1700	61		mg/Kg	20	8/30/2023 12:35:43 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 10:45:00 AM
Lab ID: 2308D04-008 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/31/2023 10:17:02 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/31/2023 10:17:02 AM
Surr: DNOP	103	69-147		%Rec	1	8/31/2023 10:17:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/31/2023 4:56:00 PM
Surr: BFB	99.9	15-244		%Rec	1	8/31/2023 4:56:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	8/31/2023 4:56:00 PM
Toluene	ND	0.049		mg/Kg	1	8/31/2023 4:56:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/31/2023 4:56:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/31/2023 4:56:00 PM
Surr: 4-Bromofluorobenzene	94.0	39.1-146		%Rec	1	8/31/2023 4:56:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	730	60		mg/Kg	20	8/30/2023 12:48:08 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-07 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 11:00:00 AM
Lab ID: 2308D04-009 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	2900	96		mg/Kg	10	8/31/2023 11:28:46 AM
Motor Oil Range Organics (MRO)	2100	480		mg/Kg	10	8/31/2023 11:28:46 AM
Surr: DNOP	0	69-147	S	%Rec	10	8/31/2023 11:28:46 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/31/2023 6:02:00 PM
Surr: BFB	99.9	15-244		%Rec	1	8/31/2023 6:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	8/31/2023 6:02:00 PM
Toluene	ND	0.047		mg/Kg	1	8/31/2023 6:02:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/31/2023 6:02:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/31/2023 6:02:00 PM
Surr: 4-Bromofluorobenzene	92.2	39.1-146		%Rec	1	8/31/2023 6:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1900	60		mg/Kg	20	8/30/2023 1:00:32 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-07 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 11:15:00 AM
Lab ID: 2308D04-010 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/29/2023 11:24:25 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	8/29/2023 11:24:25 PM
Surr: DNOP	83.3	69-147		%Rec	1	8/29/2023 11:24:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/31/2023 7:08:00 PM
Surr: BFB	97.3	15-244		%Rec	1	8/31/2023 7:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	8/31/2023 7:08:00 PM
Toluene	ND	0.050		mg/Kg	1	8/31/2023 7:08:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/31/2023 7:08:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/31/2023 7:08:00 PM
Surr: 4-Bromofluorobenzene	92.2	39.1-146		%Rec	1	8/31/2023 7:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	120	60		mg/Kg	20	8/30/2023 1:12:57 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 11:30:00 AM
Lab ID: 2308D04-011 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	38	9.7		mg/Kg	1	8/29/2023 11:35:42 PM
Motor Oil Range Organics (MRO)	81	48		mg/Kg	1	8/29/2023 11:35:42 PM
Surr: DNOP	86.0	69-147		%Rec	1	8/29/2023 11:35:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/31/2023 7:30:00 PM
Surr: BFB	99.4	15-244		%Rec	1	8/31/2023 7:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	8/31/2023 7:30:00 PM
Toluene	ND	0.049		mg/Kg	1	8/31/2023 7:30:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/31/2023 7:30:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/31/2023 7:30:00 PM
Surr: 4-Bromofluorobenzene	91.6	39.1-146		%Rec	1	8/31/2023 7:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	170	60		mg/Kg	20	8/30/2023 1:25:22 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 11:45:00 AM
Lab ID: 2308D04-012 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/29/2023 11:46:59 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/29/2023 11:46:59 PM
Surr: DNOP	85.0	69-147		%Rec	1	8/29/2023 11:46:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/31/2023 8:13:00 PM
Surr: BFB	98.3	15-244		%Rec	1	8/31/2023 8:13:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	8/31/2023 8:13:00 PM
Toluene	ND	0.047		mg/Kg	1	8/31/2023 8:13:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/31/2023 8:13:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/31/2023 8:13:00 PM
Surr: 4-Bromofluorobenzene	89.5	39.1-146		%Rec	1	8/31/2023 8:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	8/30/2023 1:37:46 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-09 0'
Project: Cotton Draw Unit 205 H
Collection Date: 8/22/2023 12:00:00 PM
Lab ID: 2308D04-013 **Matrix:** SOIL
Received Date: 8/24/2023 7:25:00 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	8/29/2023 11:58:07 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/29/2023 11:58:07 PM
Surr: DNOP	86.2	69-147		%Rec	1	8/29/2023 11:58:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/31/2023 8:35:00 PM
Surr: BFB	106	15-244		%Rec	1	8/31/2023 8:35:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	8/31/2023 8:35:00 PM
Toluene	ND	0.047		mg/Kg	1	8/31/2023 8:35:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/31/2023 8:35:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/31/2023 8:35:00 PM
Surr: 4-Bromofluorobenzene	91.0	39.1-146		%Rec	1	8/31/2023 8:35:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	4000	150		mg/Kg	50	8/30/2023 8:37:59 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 12:15:00 PM
Lab ID: 2308D04-014 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/30/2023 12:09:18 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/30/2023 12:09:18 AM
Surr: DNOP	84.6	69-147		%Rec	1	8/30/2023 12:09:18 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/31/2023 8:57:00 PM
Surr: BFB	97.8	15-244		%Rec	1	8/31/2023 8:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	8/31/2023 8:57:00 PM
Toluene	ND	0.048		mg/Kg	1	8/31/2023 8:57:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/31/2023 8:57:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	8/31/2023 8:57:00 PM
Surr: 4-Bromofluorobenzene	91.2	39.1-146		%Rec	1	8/31/2023 8:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	75	60		mg/Kg	20	8/30/2023 2:27:24 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 12:30:00 PM
Lab ID: 2308D04-015 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/30/2023 12:20:30 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/30/2023 12:20:30 AM
Surr: DNOP	83.2	69-147		%Rec	1	8/30/2023 12:20:30 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/31/2023 9:19:00 PM
Surr: BFB	101	15-244		%Rec	1	8/31/2023 9:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	8/31/2023 9:19:00 PM
Toluene	ND	0.047		mg/Kg	1	8/31/2023 9:19:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/31/2023 9:19:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/31/2023 9:19:00 PM
Surr: 4-Bromofluorobenzene	90.6	39.1-146		%Rec	1	8/31/2023 9:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	110	60		mg/Kg	20	8/30/2023 2:39:48 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 12:45:00 PM
Lab ID: 2308D04-016 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/30/2023 12:31:39 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/30/2023 12:31:39 AM
Surr: DNOP	84.2	69-147		%Rec	1	8/30/2023 12:31:39 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/31/2023 9:41:00 PM
Surr: BFB	97.5	15-244		%Rec	1	8/31/2023 9:41:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	8/31/2023 9:41:00 PM
Toluene	ND	0.048		mg/Kg	1	8/31/2023 9:41:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/31/2023 9:41:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/31/2023 9:41:00 PM
Surr: 4-Bromofluorobenzene	90.3	39.1-146		%Rec	1	8/31/2023 9:41:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1600	60		mg/Kg	20	8/29/2023 9:55:38 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 0'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 1:00:00 PM
Lab ID: 2308D04-017 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	93	9.8		mg/Kg	1	8/30/2023 12:42:50 AM
Motor Oil Range Organics (MRO)	130	49		mg/Kg	1	8/30/2023 12:42:50 AM
Surr: DNOP	82.2	69-147		%Rec	1	8/30/2023 12:42:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/31/2023 10:03:00 PM
Surr: BFB	97.2	15-244		%Rec	1	8/31/2023 10:03:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	8/31/2023 10:03:00 PM
Toluene	ND	0.049		mg/Kg	1	8/31/2023 10:03:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/31/2023 10:03:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/31/2023 10:03:00 PM
Surr: 4-Bromofluorobenzene	90.1	39.1-146		%Rec	1	8/31/2023 10:03:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	85	60		mg/Kg	20	8/29/2023 10:08:03 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308D04**
Date Reported: **9/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 2'
Project: Cotton Draw Unit 205 H **Collection Date:** 8/22/2023 1:15:00 PM
Lab ID: 2308D04-018 **Matrix:** SOIL **Received Date:** 8/24/2023 7:25:00 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	8/30/2023 12:53:57 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/30/2023 12:53:57 AM
Surr: DNOP	86.2	69-147		%Rec	1	8/30/2023 12:53:57 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/31/2023 10:25:00 PM
Surr: BFB	97.5	15-244		%Rec	1	8/31/2023 10:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	8/31/2023 10:25:00 PM
Toluene	ND	0.047		mg/Kg	1	8/31/2023 10:25:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/31/2023 10:25:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/31/2023 10:25:00 PM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	8/31/2023 10:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	8/29/2023 10:20:27 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308D04**

08-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205 H

Sample ID: **MB-77178**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **77178**	RunNo: **99333**								
Prep Date: **8/29/2023**	Analysis Date: **8/29/2023**	SeqNo: **3624331**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77178**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **77178**	RunNo: **99333**								
Prep Date: **8/29/2023**	Analysis Date: **8/29/2023**	SeqNo: **3624333**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.8	90	110			

Sample ID: **MB-77174**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **77174**	RunNo: **99340**								
Prep Date: **8/29/2023**	Analysis Date: **8/29/2023**	SeqNo: **3624627**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77174**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **77174**	RunNo: **99340**								
Prep Date: **8/29/2023**	Analysis Date: **8/29/2023**	SeqNo: **3624628**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308D04**

08-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205 H

Sample ID: **MB-77157**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77157**	RunNo: **99274**
Prep Date: **8/29/2023**	Analysis Date: **8/29/2023**	SeqNo: **3623888** 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	10		10.00		104	69	147			

Sample ID: **LCS-77157**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77157**	RunNo: **99363**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3625852** 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	109	61.9	130			
Surr: DNOP	5.1		5.000		101	69	147			

Sample ID: **2308D04-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-03 0'**	Batch ID: **77157**	RunNo: **99363**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3625854** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	94	9.7	48.26	35.03	121	54.2	135			
Surr: DNOP	5.0		4.826		104	69	147			

Sample ID: **2308D04-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-03 0'**	Batch ID: **77157**	RunNo: **99363**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3625855** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	83	9.5	47.57	35.03	100	54.2	135	12.2	29.2	
Surr: DNOP	5.0		4.757		105	69	147	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308D04**

08-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205 H

Sample ID: **lcs-77147**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77147**	RunNo: **99308**
Prep Date: **8/28/2023**	Analysis Date: **8/30/2023**	SeqNo: **3623632** 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		188	15	244			

Sample ID: **mb-77147**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77147**	RunNo: **99308**
Prep Date: **8/28/2023**	Analysis Date: **8/30/2023**	SeqNo: **3623633** 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		91.5	15	244			

Sample ID: **lcs-77152**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77152**	RunNo: **99356**
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3626269** 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	88.3	70	130			
Surr: BFB	2100		1000		206	15	244			

Sample ID: **mb-77152**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77152**	RunNo: **99356**
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3626270** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.2	15	244			

Sample ID: **2308D04-008ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-06 2'**	Batch ID: **77152**	RunNo: **99374**
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627980** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.51	0	87.8	70	130			
Surr: BFB	2100		980.4		214	15	244			

Sample ID: **2308D04-008amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-06 2'**	Batch ID: **77152**	RunNo: **99374**
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627981** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308D04**

08-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205 H

Sample ID: **2308D04-008amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH23-06 2'**	Batch ID: **77152**	RunNo: **99374**							
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627981**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.53	0	86.6	70	130	1.28	20	
Surr: BFB	2100		981.4		216	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308D04**

08-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205 H

Sample ID: **LCS-77147** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **77147** RunNo: **99308**

Prep Date: **8/28/2023** Analysis Date: **8/30/2023** SeqNo: **3623669** 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	104	70	130			
Toluene	1.0	0.050	1.000	0	104	70	130			
Ethylbenzene	1.1	0.050	1.000	0	105	70	130			
Xylenes, Total	3.2	0.10	3.000	0	106	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		105	39.1	146			

Sample ID: **mb-77147** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **77147** RunNo: **99308**

Prep Date: **8/28/2023** Analysis Date: **8/30/2023** SeqNo: **3623670** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	39.1	146			

Sample ID: **lcs-77152** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **77152** RunNo: **99356**

Prep Date: **8/28/2023** Analysis Date: **8/31/2023** SeqNo: **3626271** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.5	70	130			
Toluene	0.92	0.050	1.000	0	92.1	70	130			
Ethylbenzene	0.94	0.050	1.000	0	94.0	70	130			
Xylenes, Total	2.8	0.10	3.000	0	94.1	70	130			
Surr: 4-Bromofluorobenzene	0.93		1.000		92.6	39.1	146			

Sample ID: **mb-77152** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **77152** RunNo: **99356**

Prep Date: **8/28/2023** Analysis Date: **8/31/2023** SeqNo: **3626272** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		90.7	39.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308D04**

08-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205 H

Sample ID: **2308D04-009ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-07 0'**	Batch ID: **77152**	RunNo: **99374**
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3628013** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9488	0	91.7	70	130			
Toluene	0.88	0.047	0.9488	0.01467	91.4	70	130			
Ethylbenzene	0.88	0.047	0.9488	0	93.0	70	130			
Xylenes, Total	2.7	0.095	2.846	0	93.4	70	130			
Surr: 4-Bromofluorobenzene	0.88		0.9488		92.9	39.1	146			

Sample ID: **2308D04-009amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-07 0'**	Batch ID: **77152**	RunNo: **99374**
Prep Date: **8/28/2023**	Analysis Date: **8/31/2023**	SeqNo: **3628014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.024	0.9452	0	91.2	70	130	1.00	20	
Toluene	0.88	0.047	0.9452	0.01467	91.4	70	130	0.319	20	
Ethylbenzene	0.89	0.047	0.9452	0	93.6	70	130	0.367	20	
Xylenes, Total	2.7	0.095	2.836	0	93.5	70	130	0.276	20	
Surr: 4-Bromofluorobenzene	0.88		0.9452		93.4	39.1	146	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2308D04

RcptNo: 1

Received By: Tracy Casarrubias 8/24/2023 7:25:00 AM

Completed By: Tracy Casarrubias 8/24/2023 8:57:42 AM

Reviewed By: CMC 8/24/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: / (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no. notify customer for authorization.)	Yes ☑	No ☐	Checked by: SCM 8/24/23

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 8/24/23

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		

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: Cotton Draw Unit #205H

Project #: 23E-04191

Project Manager: Kent Stallings

Sampler: Zach Englebert

On Ice: ☑ Yes ☐ No Yogi

# of Coolers: 1

Cooler Temp(including CF): 4.8-0=4.8 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2309D04	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)
8-22-23	9:00	soil	BH23-03 0'	1 jar	ice	001	✓	✓					✓			
	9:15		BH23-03 2'			002										
	9:30		BH23-04 0'			003										
	9:45		BH23-04 2'			004										
	10:00		BH23-05 0'			005										
	10:15		BH23-05 2'			006										
	10:30		BH23-06 0'			007										
	10:45		BH23-06 2'			008										
	11:00		BH23-07 0'			009										
	11:15		BH23-07 2'			010										
	11:30		BH23-08 0'			011										
✓	11:45	✓	BH23-08 2'	✓	✓	012	✓	✓	✓				✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					8/23/23	915
8/23/23	1900			Via: courier	Date	Time 7:25
					8/24/23	

Remarks: Direct Bill to Devon
cc: KStallings@vertex.ca
cc: Aharris@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:
☑ Standard ☑ Rush 5 Day

Project Name: Cotton Draw Unit #205 H

Project #: 23E-04191

Project Manager: Kent Stallings

Sampler: Zach Englebert

On Ice: ☑ Yes ☐ No 409i

# of Coolers: 1

Cooler Temp (including CF): 4.8 - 0 = 4.8 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	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)						
8-22-23	12:00	Soil	BH23-09 0'	1 jar	ice	2308D04-013	✓	✓					✓									
↓	12:15	↓	BH23-09 2'	↓	↓	014	✓	✓					✓									
↓	12:30	↓	BH23-10 0'	↓	↓	015	✓	✓					✓									
↓	12:45	↓	BH23-10 2'	↓	↓	016	✓	✓					✓									
↓	13:00	↓	BH23-11 0'	↓	↓	017	✓	✓					✓									
↓	13:15	↓	BH23-11 2'	↓	↓	018	✓	✓					✓									

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			[signature]		8/23/23	915
8/23/23	1900	[signature]	[signature]	Courier	8/24/23	7:25

Remarks:

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.

2 of 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 11, 2023

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL:
FAX:

RE: Cotton Draw 205 H OrderNo.: 2308E00

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 20 sample(s) on 8/25/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 9:00:00 AM
Lab ID: 2308E00-001 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.7		mg/Kg	1	8/31/2023 5:55:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 5:55:08 PM
Surr: DNOP	83.2	69-147		%Rec	1	8/31/2023 5:55:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/2/2023 3:54:16 PM
Surr: BFB	98.8	15-244		%Rec	1	9/2/2023 3:54:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/2/2023 3:54:16 PM
Toluene	ND	0.049		mg/Kg	1	9/2/2023 3:54:16 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/2/2023 3:54:16 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/2/2023 3:54:16 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	9/2/2023 3:54:16 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	4000	150		mg/Kg	50	8/31/2023 5:36:20 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 1'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 9:10:00 AM
Lab ID: 2308E00-002 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	10		mg/Kg	1	8/31/2023 6:06:13 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/31/2023 6:06:13 PM
Surr: DNOP	132	69-147		%Rec	1	8/31/2023 6:06:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/2/2023 4:17:51 PM
Surr: BFB	99.4	15-244		%Rec	1	9/2/2023 4:17:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/2/2023 4:17:51 PM
Toluene	ND	0.048		mg/Kg	1	9/2/2023 4:17:51 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/2/2023 4:17:51 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/2/2023 4:17:51 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	9/2/2023 4:17:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	260	60		mg/Kg	20	8/31/2023 12:23:30 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 9:20:00 AM
Lab ID: 2308E00-003 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.6		mg/Kg	1	8/31/2023 6:17:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2023 6:17:28 PM
Surr: DNOP	98.2	69-147		%Rec	1	8/31/2023 6:17:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/2/2023 4:41:27 PM
Surr: BFB	96.4	15-244		%Rec	1	9/2/2023 4:41:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/2/2023 4:41:27 PM
Toluene	ND	0.049		mg/Kg	1	9/2/2023 4:41:27 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/2/2023 4:41:27 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/2/2023 4:41:27 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	9/2/2023 4:41:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1700	60		mg/Kg	20	8/31/2023 2:54:59 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 1'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 9:30:00 AM
Lab ID: 2308E00-004 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.4		mg/Kg	1	8/31/2023 6:28:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/31/2023 6:28:34 PM
Surr: DNOP	94.5	69-147		%Rec	1	8/31/2023 6:28:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/2/2023 5:05:03 PM
Surr: BFB	98.0	15-244		%Rec	1	9/2/2023 5:05:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 5:05:03 PM
Toluene	ND	0.046		mg/Kg	1	9/2/2023 5:05:03 PM
Ethylbenzene	ND	0.046		mg/Kg	1	9/2/2023 5:05:03 PM
Xylenes, Total	ND	0.091		mg/Kg	1	9/2/2023 5:05:03 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	9/2/2023 5:05:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	350	60		mg/Kg	20	8/31/2023 3:07:24 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 9:40:00 AM
Lab ID: 2308E00-005 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 6:39:43 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 6:39:43 PM
Surr: DNOP	90.2	69-147		%Rec	1	8/31/2023 6:39:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/2/2023 5:28:42 PM
Surr: BFB	98.3	15-244		%Rec	1	9/2/2023 5:28:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 5:28:42 PM
Toluene	ND	0.046		mg/Kg	1	9/2/2023 5:28:42 PM
Ethylbenzene	ND	0.046		mg/Kg	1	9/2/2023 5:28:42 PM
Xylenes, Total	ND	0.093		mg/Kg	1	9/2/2023 5:28:42 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/2/2023 5:28:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	3000	150		mg/Kg	50	9/1/2023 7:23:48 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 1'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 9:50:00 AM
Lab ID: 2308E00-006 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 6:50:46 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/31/2023 6:50:46 PM
Surr: DNOP	135	69-147		%Rec	1	8/31/2023 6:50:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/1/2023 12:52:49 PM
Surr: BFB	93.9	15-244		%Rec	1	9/1/2023 12:52:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/1/2023 12:52:49 PM
Toluene	ND	0.049		mg/Kg	1	9/1/2023 12:52:49 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/1/2023 12:52:49 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/1/2023 12:52:49 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/1/2023 12:52:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	630	60		mg/Kg	20	8/31/2023 4:46:41 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-15 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 10:00:00 AM
Lab ID: 2308E00-007 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	10		mg/Kg	1	8/31/2023 7:01:51 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/31/2023 7:01:51 PM
Surr: DNOP	103	69-147		%Rec	1	8/31/2023 7:01:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/1/2023 1:16:23 PM
Surr: BFB	93.2	15-244		%Rec	1	9/1/2023 1:16:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	9/1/2023 1:16:23 PM
Toluene	ND	0.047		mg/Kg	1	9/1/2023 1:16:23 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/1/2023 1:16:23 PM
Xylenes, Total	ND	0.094		mg/Kg	1	9/1/2023 1:16:23 PM
Surr: 4-Bromofluorobenzene	103	39.1-146		%Rec	1	9/1/2023 1:16:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	2800	150		mg/Kg	50	9/1/2023 7:36:13 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-15 1'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 10:10:00 AM
Lab ID: 2308E00-008 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.6		mg/Kg	1	8/31/2023 7:12:52 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2023 7:12:52 PM
Surr: DNOP	107	69-147		%Rec	1	8/31/2023 7:12:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/1/2023 1:39:59 PM
Surr: BFB	96.5	15-244		%Rec	1	9/1/2023 1:39:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/1/2023 1:39:59 PM
Toluene	ND	0.047		mg/Kg	1	9/1/2023 1:39:59 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/1/2023 1:39:59 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/1/2023 1:39:59 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	9/1/2023 1:39:59 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	670	59		mg/Kg	20	8/31/2023 1:07:39 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-16 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 10:20:00 AM
Lab ID: 2308E00-009 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 7:23:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 7:23:51 PM
Surr: DNOP	84.7	69-147		%Rec	1	8/31/2023 7:23:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/1/2023 2:03:34 PM
Surr: BFB	94.4	15-244		%Rec	1	9/1/2023 2:03:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/1/2023 2:03:34 PM
Toluene	ND	0.049		mg/Kg	1	9/1/2023 2:03:34 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/1/2023 2:03:34 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/1/2023 2:03:34 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/1/2023 2:03:34 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	2300	60		mg/Kg	20	8/31/2023 1:44:53 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-16 1'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 10:30:00 AM
Lab ID: 2308E00-010 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 7:34:47 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 7:34:47 PM
Surr: DNOP	109	69-147		%Rec	1	8/31/2023 7:34:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/1/2023 10:51:00 PM
Surr: BFB	95.6	15-244		%Rec	1	9/1/2023 10:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/1/2023 10:51:00 PM
Toluene	ND	0.048		mg/Kg	1	9/1/2023 10:51:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/1/2023 10:51:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/1/2023 10:51:00 PM
Surr: 4-Bromofluorobenzene	88.1	39.1-146		%Rec	1	9/1/2023 10:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	480	60		mg/Kg	20	8/31/2023 1:57:18 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-17 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 10:40:00 AM
Lab ID: 2308E00-011 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 7:56:50 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/31/2023 7:56:50 PM
Surr: DNOP	80.9	69-147		%Rec	1	8/31/2023 7:56:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/1/2023 11:56:00 PM
Surr: BFB	91.0	15-244		%Rec	1	9/1/2023 11:56:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/1/2023 11:56:00 PM
Toluene	ND	0.050		mg/Kg	1	9/1/2023 11:56:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/1/2023 11:56:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/1/2023 11:56:00 PM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	9/1/2023 11:56:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	1200	60		mg/Kg	20	8/31/2023 2:34:32 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-17 1'
Project: Cotton Draw 205 H
Collection Date: 8/23/2023 10:50:00 AM
Lab ID: 2308E00-012 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.3		mg/Kg	1	8/31/2023 8:07:45 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/31/2023 8:07:45 PM
Surr: DNOP	90.6	69-147		%Rec	1	8/31/2023 8:07:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/2/2023 1:01:00 AM
Surr: BFB	95.9	15-244		%Rec	1	9/2/2023 1:01:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/2/2023 1:01:00 AM
Toluene	ND	0.050		mg/Kg	1	9/2/2023 1:01:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	9/2/2023 1:01:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	9/2/2023 1:01:00 AM
Surr: 4-Bromofluorobenzene	88.6	39.1-146		%Rec	1	9/2/2023 1:01:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	210	60		mg/Kg	20	8/31/2023 2:46:57 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 11:00:00 AM
Lab ID: 2308E00-013 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.5		mg/Kg	1	8/31/2023 8:18:49 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2023 8:18:49 PM
Surr: DNOP	98.8	69-147		%Rec	1	8/31/2023 8:18:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/2/2023 1:22:00 AM
Surr: BFB	99.3	15-244		%Rec	1	9/2/2023 1:22:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 1:22:00 AM
Toluene	ND	0.046		mg/Kg	1	9/2/2023 1:22:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/2/2023 1:22:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	9/2/2023 1:22:00 AM
Surr: 4-Bromofluorobenzene	90.2	39.1-146		%Rec	1	9/2/2023 1:22:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	530	59		mg/Kg	20	8/31/2023 2:59:21 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 1'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 11:10:00 AM
Lab ID: 2308E00-014 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 8:29:47 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	8/31/2023 8:29:47 PM
Surr: DNOP	101	69-147		%Rec	1	8/31/2023 8:29:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/2/2023 1:44:00 AM
Surr: BFB	94.2	15-244		%Rec	1	9/2/2023 1:44:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 1:44:00 AM
Toluene	ND	0.047		mg/Kg	1	9/2/2023 1:44:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/2/2023 1:44:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/2/2023 1:44:00 AM
Surr: 4-Bromofluorobenzene	88.9	39.1-146		%Rec	1	9/2/2023 1:44:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	110	60		mg/Kg	20	8/31/2023 3:11:45 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 2'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 11:20:00 AM
Lab ID: 2308E00-015 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.5		mg/Kg	1	8/31/2023 8:40:51 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	8/31/2023 8:40:51 PM
Surr: DNOP	102	69-147		%Rec	1	8/31/2023 8:40:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/2/2023 2:06:00 AM
Surr: BFB	92.6	15-244		%Rec	1	9/2/2023 2:06:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 2:06:00 AM
Toluene	ND	0.046		mg/Kg	1	9/2/2023 2:06:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/2/2023 2:06:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	9/2/2023 2:06:00 AM
Surr: 4-Bromofluorobenzene	88.5	39.1-146		%Rec	1	9/2/2023 2:06:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	200	60		mg/Kg	20	8/31/2023 3:24:10 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 2'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 11:30:00 AM
Lab ID: 2308E00-016 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 8:51:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 8:51:51 PM
Surr: DNOP	109	69-147		%Rec	1	8/31/2023 8:51:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/2/2023 2:27:00 AM
Surr: BFB	94.0	15-244		%Rec	1	9/2/2023 2:27:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/2/2023 2:27:00 AM
Toluene	ND	0.047		mg/Kg	1	9/2/2023 2:27:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/2/2023 2:27:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/2/2023 2:27:00 AM
Surr: 4-Bromofluorobenzene	88.8	39.1-146		%Rec	1	9/2/2023 2:27:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	340	60		mg/Kg	20	8/31/2023 3:36:34 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-19 0'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 11:40:00 AM
Lab ID: 2308E00-017 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.9		mg/Kg	1	8/31/2023 9:02:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	8/31/2023 9:02:51 PM
Surr: DNOP	75.0	69-147		%Rec	1	8/31/2023 9:02:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/2/2023 2:49:00 AM
Surr: BFB	101	15-244		%Rec	1	9/2/2023 2:49:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/2/2023 2:49:00 AM
Toluene	ND	0.047		mg/Kg	1	9/2/2023 2:49:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/2/2023 2:49:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/2/2023 2:49:00 AM
Surr: 4-Bromofluorobenzene	91.3	39.1-146		%Rec	1	9/2/2023 2:49:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	1200	60		mg/Kg	20	8/31/2023 3:48:59 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-19 2'
Project: Cotton Draw 205 H **Collection Date:** 8/23/2023 11:40:00 AM
Lab ID: 2308E00-018 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.5		mg/Kg	1	8/31/2023 9:13:55 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2023 9:13:55 PM
Surr: DNOP	102	69-147		%Rec	1	8/31/2023 9:13:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/2/2023 3:11:00 AM
Surr: BFB	94.2	15-244		%Rec	1	9/2/2023 3:11:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 3:11:00 AM
Toluene	ND	0.047		mg/Kg	1	9/2/2023 3:11:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/2/2023 3:11:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/2/2023 3:11:00 AM
Surr: 4-Bromofluorobenzene	90.9	39.1-146		%Rec	1	9/2/2023 3:11:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	220	60		mg/Kg	20	8/31/2023 4:01:24 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-20 0'
Project: Cotton Draw 205 H
Collection Date: 8/23/2023 11:50:00 AM
Lab ID: 2308E00-019 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	56	9.5		mg/Kg	1	8/31/2023 9:24:55 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	8/31/2023 9:24:55 PM
Surr: DNOP	79.8	69-147		%Rec	1	8/31/2023 9:24:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/2/2023 3:33:00 AM
Surr: BFB	96.5	15-244		%Rec	1	9/2/2023 3:33:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/2/2023 3:33:00 AM
Toluene	ND	0.046		mg/Kg	1	9/2/2023 3:33:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/2/2023 3:33:00 AM
Xylenes, Total	ND	0.091		mg/Kg	1	9/2/2023 3:33:00 AM
Surr: 4-Bromofluorobenzene	90.2	39.1-146		%Rec	1	9/2/2023 3:33:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	1100	60		mg/Kg	20	8/31/2023 4:13:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2308E00**
Date Reported: **9/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-20 2'
Project: Cotton Draw 205 H
Collection Date: 8/23/2023 12:00:00 PM
Lab ID: 2308E00-020 **Matrix:** SOIL **Received Date:** 8/25/2023 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)	ND	9.2		mg/Kg	1	8/31/2023 9:46:47 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	8/31/2023 9:46:47 PM
Surr: DNOP	113	69-147		%Rec	1	8/31/2023 9:46:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/2/2023 4:16:00 AM
Surr: BFB	96.0	15-244		%Rec	1	9/2/2023 4:16:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/2/2023 4:16:00 AM
Toluene	ND	0.048		mg/Kg	1	9/2/2023 4:16:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	9/2/2023 4:16:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	9/2/2023 4:16:00 AM
Surr: 4-Bromofluorobenzene	90.1	39.1-146		%Rec	1	9/2/2023 4:16:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	59		mg/Kg	20	8/31/2023 4:26:13 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **MB-77219** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **77219** RunNo: **99393**
Prep Date: **8/30/2023** Analysis Date: **8/30/2023** SeqNo: **3626972** Units: **mg/Kg**

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

Sample ID: **LCS-77219** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **77219** RunNo: **99393**
Prep Date: **8/30/2023** Analysis Date: **8/30/2023** SeqNo: **3626973** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

Sample ID: **MB-77235** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **77235** RunNo: **99401**
Prep Date: **8/31/2023** Analysis Date: **8/31/2023** SeqNo: **3627541** Units: **mg/Kg**

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

Sample ID: **LCS-77235** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **77235** RunNo: **99401**
Prep Date: **8/31/2023** Analysis Date: **8/31/2023** SeqNo: **3627543** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.8	90	110			

Sample ID: **MB-77233** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **77233** RunNo: **99389**
Prep Date: **8/31/2023** Analysis Date: **8/31/2023** SeqNo: **3628224** Units: **mg/Kg**

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

Sample ID: **LCS-77233** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **77233** RunNo: **99389**
Prep Date: **8/31/2023** Analysis Date: **8/31/2023** SeqNo: **3628225** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **LCS-77177**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77177**	RunNo: **99380**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627016** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	61.9	130			
Surr: DNOP	5.7		5.000		114	69	147			

Sample ID: **MB-77177**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77177**	RunNo: **99380**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627018** 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		116	69	147			

Sample ID: **2308E00-006AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-14 1'**	Batch ID: **77208**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627488** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	9.9	49.46	0	120	54.2	135			
Surr: DNOP	5.9		4.946		120	69	147			

Sample ID: **2308E00-006AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-14 1'**	Batch ID: **77208**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627489** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	72	9.3	46.30	0	155	54.2	135	18.9	29.2	S
Surr: DNOP	6.9		4.630		150	69	147	0	0	S

Sample ID: **2308E00-010AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-16 1'**	Batch ID: **77213**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627494** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	9.9	49.70	0	107	54.2	135			
Surr: DNOP	5.1		4.970		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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **2308E00-010AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-16 1'**	Batch ID: **77213**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627495** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	56	9.2	46.04	0	122	54.2	135	4.93	29.2	
Surr: DNOP	5.5		4.604		119	69	147	0	0	

Sample ID: **LCS-77176**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77176**	RunNo: **99380**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627544** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		109	69	147			

Sample ID: **LCS-77208**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77208**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627545** 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	5.9		5.000		119	69	147			

Sample ID: **LCS-77213**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77213**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627547** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	103	61.9	130			
Surr: DNOP	5.3		5.000		105	69	147			

Sample ID: **MB-77176**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77176**	RunNo: **99380**
Prep Date: **8/29/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627552** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	13		10.00		126	69	147			

Sample ID: **MB-77208**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77208**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627556** 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								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **MB-77208**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77208**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627556** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	13		10.00		131	69	147			

Sample ID: **MB-77213**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77213**	RunNo: **99380**
Prep Date: **8/30/2023**	Analysis Date: **8/31/2023**	SeqNo: **3627557** 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		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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **lcs-77198**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77198**	RunNo: **99366**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627635** 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	88.2	70	130			
Surr: BFB	1900		1000		193	15	244			

Sample ID: **mb-77198**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77198**	RunNo: **99366**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627636** 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	940		1000		93.9	15	244			

Sample ID: **lcs-77172**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77172**	RunNo: **99411**
Prep Date: **8/29/2023**	Analysis Date: **9/2/2023**	SeqNo: **3628857** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.5	70	130			
Surr: BFB	1900		1000		191	15	244			

Sample ID: **mb-77172**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77172**	RunNo: **99411**
Prep Date: **8/29/2023**	Analysis Date: **9/2/2023**	SeqNo: **3628859** 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	940		1000		93.5	15	244			

Sample ID: **lcs-77209**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629500** 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	92.2	70	130			
Surr: BFB	2200		1000		216	15	244			

Sample ID: **mb-77209**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629501** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **mb-77209**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629501** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.1	15	244			

Sample ID: **2308E00-010ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-16 1'**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629503** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	24.13	0	94.2	70	130			
Surr: BFB	2100		965.3		214	15	244			

Sample ID: **2308E00-010amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-16 1'**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629504** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	24.06	0	96.6	70	130	2.19	20	
Surr: BFB	2100		962.5		216	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **LCS-77198**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77198**	RunNo: **99366**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627740** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	70	130			
Toluene	1.0	0.050	1.000	0	105	70	130			
Ethylbenzene	1.1	0.050	1.000	0	106	70	130			
Xylenes, Total	3.2	0.10	3.000	0	106	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	39.1	146			

Sample ID: **mb-77198**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77198**	RunNo: **99366**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3627741** 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: **LCS-77172**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77172**	RunNo: **99411**
Prep Date: **8/29/2023**	Analysis Date: **9/2/2023**	SeqNo: **3628971** 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	91.1	70	130			
Toluene	0.92	0.050	1.000	0	91.6	70	130			
Ethylbenzene	0.92	0.050	1.000	0	91.5	70	130			
Xylenes, Total	2.8	0.10	3.000	0	92.4	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	39.1	146			

Sample ID: **mb-77172**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77172**	RunNo: **99411**
Prep Date: **8/29/2023**	Analysis Date: **9/2/2023**	SeqNo: **3628973** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		105	39.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2308E00**

11-Sep-23

Client: Vertex Resources Services, Inc.

Project: Cotton Draw 205 H

Sample ID: **lcs-77209**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629583** 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	90.6	70	130			
Toluene	0.91	0.050	1.000	0	90.7	70	130			
Ethylbenzene	0.93	0.050	1.000	0	92.8	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.0	70	130			
Surr: 4-Bromofluorobenzene	0.91		1.000		90.9	39.1	146			

Sample ID: **mb-77209**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/1/2023**	SeqNo: **3629584** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		90.6	39.1	146			

Sample ID: **2308E00-011ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-17 0'**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/2/2023**	SeqNo: **3629587** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	0.9921	0	91.4	70	130			
Toluene	0.92	0.050	0.9921	0	92.5	70	130			
Ethylbenzene	0.94	0.050	0.9921	0	94.3	70	130			
Xylenes, Total	2.8	0.099	2.976	0	93.9	70	130			
Surr: 4-Bromofluorobenzene	0.88		0.9921		88.5	39.1	146			

Sample ID: **2308E00-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-17 0'**	Batch ID: **77209**	RunNo: **99415**
Prep Date: **8/30/2023**	Analysis Date: **9/2/2023**	SeqNo: **3629588** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	0.9950	0	92.9	70	130	1.85	20	
Toluene	0.94	0.050	0.9950	0	94.4	70	130	2.29	20	
Ethylbenzene	0.95	0.050	0.9950	0	95.7	70	130	1.72	20	
Xylenes, Total	2.9	0.10	2.985	0	95.6	70	130	2.07	20	
Surr: 4-Bromofluorobenzene	0.90		0.9950		90.3	39.1	146	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2308E00

RcptNo: 1

Received By: Tracy Casarrubias 8/25/2023 7:15:00 AM

Completed By: Tracy Casarrubias 8/25/2023 7:29:35 AM

Reviewed By: JM 8/25/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SCM 8/25/23

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 8/25/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Yes	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: Cotton Draw 205H

Project #: 23E-04191

Project Manager: Kent Stallings

Sampler: Zach England/Austin Harris

On Ice: ☑ Yes ☐ No marty

# of Coolers: 1

Cooler Temp(including CF): 5.0 - 0.2 = 4.8 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2308E00	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)
8-23-23	900	soil	BH23-12 0'	1 jar	ice	001										
	910		BH23-12 1'			002										
	920		BH23-13 0'			003										
	930		BH23-13 1'			004										
	940		BH23-14 0'			005										
	950		BH23-14 1'			006										
	1000		BH23-15 0'			007										
	1010		BH23-15 1'			008										
	1020		BH23-16 0'			009										
	1030		BH23-16 1'			010										
	1040		BH23-17 0'			011										
	1050		BH23-17 1'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					8/24/23	900
8/24/23	1900			courier	8/25/23	7:15

Remarks: Direct Bill to Devon
cc: Kstallings @vertex.ca
Aharris

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

Chain-of-Custody Record

Client: Vertex (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: Cotton Draw 205H

Project #: 23E-04190

Project Manager: Kent Stallings

Sampler: Zach Eyebert & Austin Harris

On Ice: ☑ Yes ☐ No marty

# of Coolers: 1

Cooler Temp(Including CF): 5.0-0.2=4.8 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2308E00	(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)
8-23-23	1100	Soil	BH23-18 0'	1 jar	ice	013										
	1110		BH23-18 1'			014										
	1120		BH23-14 2'			015										
	1130		BH23-18 2'			016										
	1140		BH23-19 0'			017										
	1140		BH23-19 2'			018										
	1150		BH23-20 0'			019										
	1200		BH23-20 2'			020										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					8/24/23	900
8/24/23	1900				8/23/23	715

Remarks: see page 1 remarks

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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 28, 2023

Kent Stallings

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

RE: Cotton Draw Unit 205H OrderNo.: 2312524

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 6 sample(s) on 12/8/2023 for the analyses presented in the following report.

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

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2312524**
Date Reported: **12/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 205H
Lab ID: 2312524-001 **Matrix:** SOIL

Client Sample ID: BES23-01 1'
Collection Date: 12/6/2023 8:52:00 AM
Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	65	9.0		mg/Kg	1	12/15/2023 1:04:16 PM
Motor Oil Range Organics (MRO)	57	45		mg/Kg	1	12/15/2023 1:04:16 PM
Surr: DNOP	96.6	69-147		%Rec	1	12/15/2023 1:04:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2023 6:52:00 AM
Surr: BFB	98.7	15-244		%Rec	1	12/15/2023 6:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	12/15/2023 6:52:00 AM
Toluene	ND	0.047		mg/Kg	1	12/15/2023 6:52:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2023 6:52:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/15/2023 6:52:00 AM
Surr: 4-Bromofluorobenzene	96.2	39.1-146		%Rec	1	12/15/2023 6:52:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	340	60		mg/Kg	20	12/14/2023 4:51:24 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2312524**
Date Reported: **12/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 205H
Lab ID: 2312524-002 **Matrix:** SOIL

Client Sample ID: BES23-02 1'
Collection Date: 12/6/2023 9:00:00 AM
Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	14	9.3		mg/Kg	1	12/15/2023 1:28:49 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	12/15/2023 1:28:49 PM
Surr: DNOP	93.2	69-147		%Rec	1	12/15/2023 1:28:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2023 7:14:00 AM
Surr: BFB	98.1	15-244		%Rec	1	12/15/2023 7:14:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	12/15/2023 7:14:00 AM
Toluene	ND	0.047		mg/Kg	1	12/15/2023 7:14:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2023 7:14:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/15/2023 7:14:00 AM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	12/15/2023 7:14:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	160	60		mg/Kg	20	12/14/2023 5:03:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2312524**
Date Reported: **12/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 205H
Lab ID: 2312524-003 **Matrix:** SOIL

Client Sample ID: BES23-03 1'
Collection Date: 12/6/2023 9:09:00 AM
Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	12/15/2023 1:53:19 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	12/15/2023 1:53:19 PM
Surr: DNOP	94.3	69-147		%Rec	1	12/15/2023 1:53:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2023 7:36:00 AM
Surr: BFB	97.0	15-244		%Rec	1	12/15/2023 7:36:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	12/15/2023 7:36:00 AM
Toluene	ND	0.047		mg/Kg	1	12/15/2023 7:36:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2023 7:36:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	12/15/2023 7:36:00 AM
Surr: 4-Bromofluorobenzene	97.1	39.1-146		%Rec	1	12/15/2023 7:36:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	440	60		mg/Kg	20	12/14/2023 5:16:13 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2312524**
Date Reported: **12/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 205H
Lab ID: 2312524-004 **Matrix:** SOIL

Client Sample ID: BES23-04 1'
Collection Date: 12/6/2023 9:15:00 AM
Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	12/15/2023 2:17:57 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/15/2023 2:17:57 PM
Surr: DNOP	92.0	69-147		%Rec	1	12/15/2023 2:17:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/15/2023 7:57:00 AM
Surr: BFB	97.7	15-244		%Rec	1	12/15/2023 7:57:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	12/15/2023 7:57:00 AM
Toluene	ND	0.047		mg/Kg	1	12/15/2023 7:57:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	12/15/2023 7:57:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	12/15/2023 7:57:00 AM
Surr: 4-Bromofluorobenzene	98.6	39.1-146		%Rec	1	12/15/2023 7:57:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	310	59		mg/Kg	20	12/14/2023 5:28:37 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 Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2312524**
Date Reported: **12/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 205H
Lab ID: 2312524-005 **Matrix:** SOIL

Client Sample ID: WES23-01 0-1'
Collection Date: 12/6/2023 8:55:00 AM
Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	240	9.4		mg/Kg	1	12/15/2023 2:42:42 PM
Motor Oil Range Organics (MRO)	190	47		mg/Kg	1	12/15/2023 2:42:42 PM
Surr: DNOP	105	69-147		%Rec	1	12/15/2023 2:42:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/15/2023 12:03:00 PM
Surr: BFB	99.9	15-244		%Rec	1	12/15/2023 12:03:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	12/15/2023 12:03:00 PM
Toluene	ND	0.049		mg/Kg	1	12/15/2023 12:03:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/15/2023 12:03:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/15/2023 12:03:00 PM
Surr: 4-Bromofluorobenzene	99.2	39.1-146		%Rec	1	12/15/2023 12:03:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	950	60		mg/Kg	20	12/15/2023 5:38:56 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2312524**
Date Reported: **12/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 205H
Lab ID: 2312524-006 **Matrix:** SOIL

Client Sample ID: WES23-02 0-1'
Collection Date: 12/6/2023 9:18:00 AM
Received Date: 12/8/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	190	9.3		mg/Kg	1	12/15/2023 3:07:31 PM
Motor Oil Range Organics (MRO)	170	47		mg/Kg	1	12/15/2023 3:07:31 PM
Surr: DNOP	99.1	69-147		%Rec	1	12/15/2023 3:07:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/15/2023 1:09:00 PM
Surr: BFB	104	15-244		%Rec	1	12/15/2023 1:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	12/15/2023 1:09:00 PM
Toluene	ND	0.050		mg/Kg	1	12/15/2023 1:09:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	12/15/2023 1:09:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	12/15/2023 1:09:00 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	12/15/2023 1:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1400	60		mg/Kg	20	12/15/2023 5:54:06 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312524**

28-Dec-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **MB-79385**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **79385**	RunNo: **101867**							
Prep Date: **12/14/2023**	Analysis Date: **12/14/2023**	SeqNo: **3756034**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-79385**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **79385**	RunNo: **101867**							
Prep Date: **12/14/2023**	Analysis Date: **12/14/2023**	SeqNo: **3756035**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

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

Sample ID: **LCS-79418**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **79418**	RunNo: **101893**							
Prep Date: **12/15/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757680**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312524**

28-Dec-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **LCS-79405**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **79405**	RunNo: **101872**
Prep Date: **12/15/2023**	Analysis Date: **12/15/2023**	SeqNo: **3756381** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.9	61.9	130			
Surr: DNOP	5.0		5.000		101	69	147			

Sample ID: **MB-79405**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **79405**	RunNo: **101872**
Prep Date: **12/15/2023**	Analysis Date: **12/15/2023**	SeqNo: **3756384** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		119	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312524**

28-Dec-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **lcs-79353**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **79353**	RunNo: **101852**
Prep Date: **12/13/2023**	Analysis Date: **12/14/2023**	SeqNo: **3755298** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	70	130			
Surr: BFB	2200		1000		217	15	244			

Sample ID: **mb-79353**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **79353**	RunNo: **101852**
Prep Date: **12/13/2023**	Analysis Date: **12/14/2023**	SeqNo: **3755299** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.4	15	244			

Sample ID: **lcs-79361**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **79361**	RunNo: **101891**
Prep Date: **12/13/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757528** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.5	70	130			
Surr: BFB	2100		1000		211	15	244			

Sample ID: **mb-79361**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **79361**	RunNo: **101891**
Prep Date: **12/13/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757529** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.1	15	244			

Sample ID: **2312524-005ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES23-01 0-1'**	Batch ID: **79361**	RunNo: **101891**
Prep Date: **12/13/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757531** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.41	0	97.7	70	130			
Surr: BFB	2100		976.6		219	15	244			

Sample ID: **2312524-005amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES23-01 0-1'**	Batch ID: **79361**	RunNo: **101891**
Prep Date: **12/13/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757532** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312524**

28-Dec-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **2312524-005amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **WES23-01 0-1'**	Batch ID: **79361**	RunNo: **101891**
Prep Date: **12/13/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757532** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.49	0	96.1	70	130	1.40	20	
Surr: BFB	2100		979.4		213	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312524**

28-Dec-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **lcs-79353**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **79353**	RunNo: **101852**
Prep Date: **12/13/2023**	Analysis Date: **12/14/2023**	SeqNo: **3755337** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	70	130			
Toluene	1.0	0.050	1.000	0	102	70	130			
Ethylbenzene	1.0	0.050	1.000	0	103	70	130			
Xylenes, Total	3.1	0.10	3.000	0	104	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	39.1	146			

Sample ID: **mb-79353**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **79353**	RunNo: **101852**
Prep Date: **12/13/2023**	Analysis Date: **12/14/2023**	SeqNo: **3755338** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	39.1	146			

Sample ID: **lcs-79361**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **79361**	RunNo: **101891**
Prep Date: **12/13/2023**	Analysis Date: **12/15/2023**	SeqNo: **3757581** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.0	70	130			
Toluene	0.94	0.050	1.000	0	94.4	70	130			
Ethylbenzene	0.96	0.050	1.000	0	96.5	70	130			
Xylenes, Total	2.9	0.10	3.000	0	97.1	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		100	39.1	146			

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

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.3	39.1	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2312524**

28-Dec-23

Client: Devon Energy

Project: Cotton Draw Unit 205H

Sample ID: **2312524-006ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **WES23-02 0-1'** Batch ID: **79361** RunNo: **101891**

Prep Date: **12/13/2023** Analysis Date: **12/15/2023** SeqNo: **3757585** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	0.9980	0	96.4	70	130			
Toluene	0.97	0.050	0.9980	0	97.1	70	130			
Ethylbenzene	0.99	0.050	0.9980	0	99.7	70	130			
Xylenes, Total	3.0	0.10	2.994	0	100	70	130			
Surr: 4-Bromofluorobenzene	0.99		0.9980		99.2	39.1	146			

Sample ID: **2312524-006amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **WES23-02 0-1'** Batch ID: **79361** RunNo: **101891**

Prep Date: **12/13/2023** Analysis Date: **12/15/2023** SeqNo: **3757586** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	0.9960	0	96.8	70	130	0.261	20	
Toluene	0.97	0.050	0.9960	0	97.4	70	130	0.0196	20	
Ethylbenzene	1.0	0.050	0.9960	0	100	70	130	0.229	20	
Xylenes, Total	3.0	0.10	2.988	0	101	70	130	0.498	20	
Surr: 4-Bromofluorobenzene	1.0		0.9960		101	39.1	146	0	0	

Qualifiers:

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

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Devon Energy | Work Order Number: 2312524 | RcptNo: 1

Received By: Cheyenne Cason 12/8/2023 8:00:00 AM

Completed By: Cheyenne Cason 12/8/2023 9:50:26 AM

Reviewed By: JM 12-8-23

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JM 12/8/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

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

Chain-of-Custody Record

Client: 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: Cotton Draw Unit #205H

Project #: 23E-04191

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☒ Yes ☐ No Marty

# of Coolers: 2 2.8 - 0.1 = 2.7

Cooler Temp(including CF): 1.3 - 0.1 = 1.2 (°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)
12/6/23	8:52	Soil	BES23-01 1'	4oz jar	Ice	001	✓	✓					✓			
	9:00		BES23-02 1'			002										
	9:09		BES23-03 1'			003										
	9:15		BES23-04 1'			004										
	8:55		WES23-010-1'			005										
	9:18		WES23-020-1'			006										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
12/7/23	10:23	Stephen McCarty				
12/7/23	1900				12/8/23	0500

Remarks: Direct bill to: Devon W/O #: 21192293
c.c. KStallings@vertex.ca
SMccarty@vertex.ca

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

February 13, 2024

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL:
FAX:

RE: Cotton Draw Unit 205H OrderNo.: 2401B07

Dear Kent Stallings:

Eurofins Environment Testing South Central, LLC received 6 sample(s) on 1/27/2024 for the analyses presented in the following report.

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

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2401B07**
Date Reported: **2/13/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-21 0'
Project: Cotton Draw Unit 205H **Collection Date:** 1/24/2024 9:30:00 AM
Lab ID: 2401B07-001 **Matrix:** SOIL **Received Date:** 1/27/2024 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/31/2024 7:00:00 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/31/2024 7:00:00 PM
Surr: DNOP	80.3	69-147		%Rec	1	1/31/2024 7:00:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/2/2024 4:55:14 AM
Surr: BFB	96.2	15-244		%Rec	1	2/2/2024 4:55:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	2/2/2024 4:55:14 AM
Toluene	ND	0.049		mg/Kg	1	2/2/2024 4:55:14 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/2/2024 4:55:14 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/2/2024 4:55:14 AM
Surr: 4-Bromofluorobenzene	84.8	39.1-146		%Rec	1	2/2/2024 4:55:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	420	60		mg/Kg	20	2/1/2024 3:55:45 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401B07**
Date Reported: **2/13/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-21 2'
Project: Cotton Draw Unit 205H **Collection Date:** 1/24/2024 10:30:00 AM
Lab ID: 2401B07-002 **Matrix:** SOIL **Received Date:** 1/27/2024 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/31/2024 7:12:07 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/31/2024 7:12:07 PM
Surr: DNOP	83.5	69-147		%Rec	1	1/31/2024 7:12:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/2/2024 5:18:40 AM
Surr: BFB	99.8	15-244		%Rec	1	2/2/2024 5:18:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	2/2/2024 5:18:40 AM
Toluene	ND	0.049		mg/Kg	1	2/2/2024 5:18:40 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/2/2024 5:18:40 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/2/2024 5:18:40 AM
Surr: 4-Bromofluorobenzene	86.8	39.1-146		%Rec	1	2/2/2024 5:18:40 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	280	59		mg/Kg	20	2/1/2024 4:10:54 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401B07**
Date Reported: **2/13/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-22 0'
Project: Cotton Draw Unit 205H **Collection Date:** 1/24/2024 11:00:00 AM
Lab ID: 2401B07-003 **Matrix:** SOIL **Received Date:** 1/27/2024 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/31/2024 7:24:04 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/31/2024 7:24:04 PM
Surr: DNOP	81.4	69-147		%Rec	1	1/31/2024 7:24:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/2/2024 5:42:08 AM
Surr: BFB	97.2	15-244		%Rec	1	2/2/2024 5:42:08 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	2/2/2024 5:42:08 AM
Toluene	ND	0.049		mg/Kg	1	2/2/2024 5:42:08 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/2/2024 5:42:08 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/2/2024 5:42:08 AM
Surr: 4-Bromofluorobenzene	85.5	39.1-146		%Rec	1	2/2/2024 5:42:08 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	320	60		mg/Kg	20	2/2/2024 10:08:33 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401B07**
Date Reported: **2/13/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-22 2'
Project: Cotton Draw Unit 205H **Collection Date:** 1/24/2024 11:30:00 AM
Lab ID: 2401B07-004 **Matrix:** SOIL **Received Date:** 1/27/2024 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/31/2024 7:36:04 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/31/2024 7:36:04 PM
Surr: DNOP	83.4	69-147		%Rec	1	1/31/2024 7:36:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/2/2024 6:05:37 AM
Surr: BFB	98.2	15-244		%Rec	1	2/2/2024 6:05:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	2/2/2024 6:05:37 AM
Toluene	ND	0.048		mg/Kg	1	2/2/2024 6:05:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/2/2024 6:05:37 AM
Xylenes, Total	ND	0.096		mg/Kg	1	2/2/2024 6:05:37 AM
Surr: 4-Bromofluorobenzene	85.6	39.1-146		%Rec	1	2/2/2024 6:05:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	61		mg/Kg	20	2/2/2024 11:24:14 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2401B07**
Date Reported: **2/13/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH24-23 0'
Project: Cotton Draw Unit 205H
Collection Date: 1/24/2024 12:30:00 PM
Lab ID: 2401B07-005 **Matrix:** SOIL **Received Date:** 1/27/2024 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/31/2024 7:47:58 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/31/2024 7:47:58 PM
Surr: DNOP	83.3	69-147		%Rec	1	1/31/2024 7:47:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/2/2024 6:29:06 AM
Surr: BFB	102	15-244		%Rec	1	2/2/2024 6:29:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	2/2/2024 6:29:06 AM
Toluene	ND	0.047		mg/Kg	1	2/2/2024 6:29:06 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/2/2024 6:29:06 AM
Xylenes, Total	ND	0.093		mg/Kg	1	2/2/2024 6:29:06 AM
Surr: 4-Bromofluorobenzene	89.4	39.1-146		%Rec	1	2/2/2024 6:29:06 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	470	60		mg/Kg	20	2/2/2024 12:09:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2401B07**
Date Reported: **2/13/2024**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH24-23 2'
Project: Cotton Draw Unit 205H **Collection Date:** 1/24/2024 1:00:00 PM
Lab ID: 2401B07-006 **Matrix:** SOIL **Received Date:** 1/27/2024 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JKU**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/2/2024 11:27:24 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/2/2024 11:27:24 AM
Surr: DNOP	92.7	61.2-134		%Rec	1	2/2/2024 11:27:24 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/2/2024 6:21:51 PM
Surr: BFB	102	15-244		%Rec	1	2/2/2024 6:21:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	2/2/2024 6:21:51 PM
Toluene	ND	0.046		mg/Kg	1	2/2/2024 6:21:51 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/2/2024 6:21:51 PM
Xylenes, Total	ND	0.092		mg/Kg	1	2/2/2024 6:21:51 PM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	2/2/2024 6:21:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	ND	60		mg/Kg	20	2/2/2024 12:24:45 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401B07**

13-Feb-24

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205H

Sample ID: **MB-80198**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **80198**	RunNo: **102829**
Prep Date: **2/1/2024**	Analysis Date: **2/1/2024**	SeqNo: **3799553** Units: **mg/Kg**

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

Sample ID: **LCS-80198**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **80198**	RunNo: **102829**
Prep Date: **2/1/2024**	Analysis Date: **2/1/2024**	SeqNo: **3799554** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.0	90	110			

Sample ID: **MB-80226**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **80226**	RunNo: **102851**
Prep Date: **2/2/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800318** Units: **mg/Kg**

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

Sample ID: **LCS-80226**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **80226**	RunNo: **102851**
Prep Date: **2/2/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800319** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401B07**

13-Feb-24

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205H

Sample ID: **MB-80186**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80186**	RunNo: **102789**
Prep Date: **1/31/2024**	Analysis Date: **1/31/2024**	SeqNo: **3798639** 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	8.1		10.00		81.2	69	147			

Sample ID: **LCS-80186**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80186**	RunNo: **102789**
Prep Date: **1/31/2024**	Analysis Date: **1/31/2024**	SeqNo: **3798640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	81.3	61.9	130			
Surr: DNOP	4.3		5.000		85.4	69	147			

Sample ID: **MB-80224**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80224**	RunNo: **102843**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800103** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		123	61.2	134			

Sample ID: **LCS-80224**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80224**	RunNo: **102843**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800104** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.4		5.000		127	69	147			

Sample ID: **MB-80223**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **80223**	RunNo: **102856**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800484** 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		107	61.2	134			

Sample ID: **LCS-80223**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80223**	RunNo: **102856**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800485** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401B07**

13-Feb-24

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205H

Sample ID: **LCS-80223**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **80223**	RunNo: **102856**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800485** 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	90.3	59.7	135			
Surr: DNOP	5.1		5.000		102	61.2	134			

Sample ID: **2401B07-006AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH24-23 2'**	Batch ID: **80223**	RunNo: **102856**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800487** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	9.0	45.17	0	86.5	43.7	136			
Surr: DNOP	4.4		4.517		96.5	61.2	134			

Sample ID: **2401B07-006AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH24-23 2'**	Batch ID: **80223**	RunNo: **102856**
Prep Date: **2/1/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800488** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.5	47.53	0	88.2	43.7	136	7.05	31.3	
Surr: DNOP	4.8		4.753		101	61.2	134	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401B07**

13-Feb-24

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205H

Sample ID: **lcs-80174**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **80174**	RunNo: **102815**
Prep Date: **1/30/2024**	Analysis Date: **2/1/2024**	SeqNo: **3799402** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	70	130			
Surr: BFB	2100		1000		209	15	244			

Sample ID: **mb-80174**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **80174**	RunNo: **102815**
Prep Date: **1/30/2024**	Analysis Date: **2/1/2024**	SeqNo: **3799403** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	15	244			

Sample ID: **lcs-80192**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3799767** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	115	70	130			
Surr: BFB	2200		1000		222	15	244			

Sample ID: **mb-80192**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3799768** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	15	244			

Sample ID: **2401b07-006ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-23 2'**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800615** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.6	23.02	0	113	70	130			
Surr: BFB	2000		920.8		219	15	244			

Sample ID: **2401b07-006amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-23 2'**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800616** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401B07**

13-Feb-24

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205H

Sample ID: **2401b07-006amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH24-23 2'**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3800616** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.6	23.19	0	107	70	130	4.38	20	
Surr: BFB	2000		927.6		216	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2401B07**

13-Feb-24

Client: Vertex Resources Services, Inc.

Project: Cotton Draw Unit 205H

Sample ID: **LCS-80174**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80174**	RunNo: **102815**
Prep Date: **1/30/2024**	Analysis Date: **2/1/2024**	SeqNo: **3799445** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.025	1.000	0	82.9	70	130			
Toluene	0.83	0.050	1.000	0	83.4	70	130			
Ethylbenzene	0.84	0.050	1.000	0	84.1	70	130			
Xylenes, Total	2.5	0.10	3.000	0	84.3	70	130			
Surr: 4-Bromofluorobenzene	0.89		1.000		88.9	39.1	146			

Sample ID: **mb-80174**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80174**	RunNo: **102815**
Prep Date: **1/30/2024**	Analysis Date: **2/1/2024**	SeqNo: **3799446** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		87.4	39.1	146			

Sample ID: **LCS-80192**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3799772** 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	88.0	70	130			
Toluene	0.89	0.050	1.000	0	88.8	70	130			
Ethylbenzene	0.89	0.050	1.000	0	88.8	70	130			
Xylenes, Total	2.7	0.10	3.000	0	89.2	70	130			
Surr: 4-Bromofluorobenzene	0.93		1.000		92.6	39.1	146			

Sample ID: **mb-80192**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **80192**	RunNo: **102837**
Prep Date: **1/31/2024**	Analysis Date: **2/2/2024**	SeqNo: **3799773** 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	0.88		1.000		88.0	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 Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Vertex Resources** Work Order Number: **2401B07** RcptNo: **1**

Received By: **Tracy Casarrubias** **1/27/2024 9:15:00 AM**

Completed By: **Tracy Casarrubias** **1/27/2024 10:48:47 AM**

Reviewed By: CM 1/29/24

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: TMC 1/27/24

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: Mailing address, phone number and Email/Fax are missing on COC- TMC 1/27/24

16. Additional remarks:

Client did not relinquish chain of custody

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.9	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 days

Project Name: Cotton Draw Unit #205H

Project #: 23E-04191

Project Manager: Kent Stallings

Sampler: Brenda Almanza

On Ice: ☑ Yes ☐ No monty

# of Coolers: 1

Cooler Temp(including CF): 6.0 - 0.1 = 5.9 (°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. 2401B067	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)
01/24/24	0930	Soil	BH24-21 0'	1 glass Jar	Ice	001										
01/24/24	1030		BH24-21 2'			002										
	1100		BH24-22 0'			003										
	1130		BH24-22 2'			004										
	1230		BH24-23 0'			005										
	1300		BH24-23 2'			006										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					1/26/24	730
01/24/24	5:12PM	Brenda Almanza		Courier	1/27/24	9:15

Remarks:
cc: Kstallings@vertex.ca & smccarty@vertex.ca
Bill directly to Devon: WO-# 2192293

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.

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

QUESTIONS

Action 326767

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nRM2007031081**
Incident Name	**NRM2007031081 COTTON DRAW UNIT #205H @ 30-015-42071**
Incident Type	**Release Other**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-015-42071] COTTON DRAW UNIT #205H**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	COTTON DRAW UNIT #205H
Date Release Discovered	02/24/2020
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	Cause: Other | Well | Produced Water | Released: 30 BBL | Recovered: 0 BBL | Lost: 30 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	Cause: Other | Well | [OBSOLETE] Natural Gas (Methane) | Released: 1,458 MCF | Recovered: 0 MCF | Lost: 1,458 MCF.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more;** **(3) an unauthorized release of gases exceeding 500 MCF.**
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@dvn.com Date: 03/26/2024

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	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 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 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 ½ and 1 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	4000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	5000
GRO+DRO (EPA SW-846 Method 8015M)	2900
BTEX (EPA SW-846 Method 8021B or 8260B)	0.1
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	01/05/2021
On what date will (or did) the final sampling or liner inspection occur	01/24/2024
On what date will (or was) the remediation complete(d)	12/06/2023
What is the estimated surface area (in square feet) that will be reclaimed	626
What is the estimated volume (in cubic yards) that will be reclaimed	23
What is the estimated surface area (in square feet) that will be remediated	626
What is the estimated volume (in cubic yards) that will be remediated	23
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	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.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dvn.com Date: 03/26/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**326779**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**12/06/2023**
What was the (estimated) number of samples that were to be gathered	**1**
What was the sampling surface area in square feet	**1**

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	626
What was the total volume (cubic yards) remediated	23
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	626
What was the total volume (in cubic yards) reclaimed	23
Summarize any additional remediation activities not included by answers (above)	see report. The sentence in the report regarding a deferral is incorrect and should be ignored.

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@dvn.com Date: 03/26/2024

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

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 326767

CONDITIONS

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	Action Number: 326767
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation closure approved.	3/29/2024
amaxwell	A reclamation report will not be accepted until reclamation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	3/29/2024
amaxwell	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	3/29/2024