General Information

NMOCD District:	District 2 – Artesia	Incident ID:	nAB1506436616, nAB1732026330, nAB1918455869
Landowner:	Bureau of Land Management	RP Reference:	2RP-2854, 2RP-4481, 2RP-5507
Client:	Devon Energy Production Company, LP	Site Location:	Union 35 Federal #001
Date:	June 4, 2025	Project #:	25E-00426
Client Contact:	Jim Raley	Phone #:	575.689.7597
Vertex PM:	Sally Carttar	Phone #:	575.361.3561

Objective

The objective of the environmental remediation work plan is to identify exceedances found during the site assessment/characterization activity and propose an appropriate remediation technique to address the open releases at Union 35 Federal #001 (hereafter referred to as "Union 35"). Areas of environmental concern identified and delineated include the area on the pad around and northeast of the plugged well head, and south and west of a tank battery and treating equipment containment. Closure criteria have been selected as per New Mexico Administrative Code (NMAC) 19.15.29. The closure criteria for the site are presented below.

Table 1. Closure Criteria for Soils Impacted by a Release DTGW <50 feet bgs

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

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

Site Assessment/Characterization

Site characterization began on September 4, 2023, and was completed on September 28, 2023. A total of 39 sample points were established and samples collected for field screening. In total, 79 samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis. The sample locations are presented on Figure 1 (Attachment 1). Laboratory analysis results have been compared to the above noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 2). Daily field reports and laboratory data reports are included in Attachments 3 and 4, respectively. All applicable research as it pertains to closure criteria selection is presented in Attachment 5. Exceedances to reclamation criteria are identified in the table as bold with gray background.

Vertical delineation was not completed for the release area due to the gravelly soil at the site. Vertical delineation will be completed during excavation to complete characterization.

Proposed Remedial Activities

General

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation. The proposed excavation location is presented on Figure 2 (Attachment 1). Laboratory results from the site assessment/characterization have been referenced to

estimate both the vertical and horizontal limits of the impacts and the volume of soil to be removed. Soil will be excavated to the extents of the known contamination or in 1-foot increments, and field screening will be utilized to confirm removal of impacted soil below the applicable closure criteria. Impacted soil will be stored on a 30mil liner prior to disposal at an approved facility. Once excavation is complete, confirmatory samples will be collected and laboratory analysis completed to confirm closure criteria guidelines are met. Excavations will be backfilled with clean soil sourced locally.

nAB1506436616, nAB1732026330, nAB1918455869 - Releases Between Plugged Well and Tank Battery Containment

Exceedances to closure criteria were identified at multiple sample points spanning the areas on the pad to the west, southwest, and south of the containment. A hand crew and/or hydrovac truck will be utilized to remove contaminated soil in close proximity to underground flowlines and any equipment near the tank battery containment and treating equipment. Heavy equipment will be used to complete excavation in areas free of infrastructure or equipment. The entire area of impact will be excavated to a planned depth of at least 2 feet below ground surface (bgs). The base of the excavation will be excavated to 4 feet bgs or below as needed to meet closure criteria. Field screening will be utilized to determine the horizontal and vertical extents of the impacted area. Confirmation samples will be collected as per New Mexico Oil Conservation Division (NMOCD) guidance and submitted for laboratory analysis of all applicable parameters. The estimated volume to be excavated is 1,209 cubic yards depending on final excavation depths. Excavation is planned to be completed within 90 days of approval of this Environmental Site Remediation Work Plan. The completed NMOCD C-141 Reports for the incidents are presented in Attachment 6.

Sample Point	Excavation Depth	Remediation Method
BH23-06	4 ft	Excavator
BH23-09		Excavator
BH23-16		Excavator
BH23-17		Excavator
BH23-23		Excavator/Handcrew/Hydrovac

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

Stephanie McCarty

Stephanie McCarty, B. Sc.
ENVIRONMENTAL SPECIALIST, REPORTING

June 4, 2025
Date

Sally Carttar

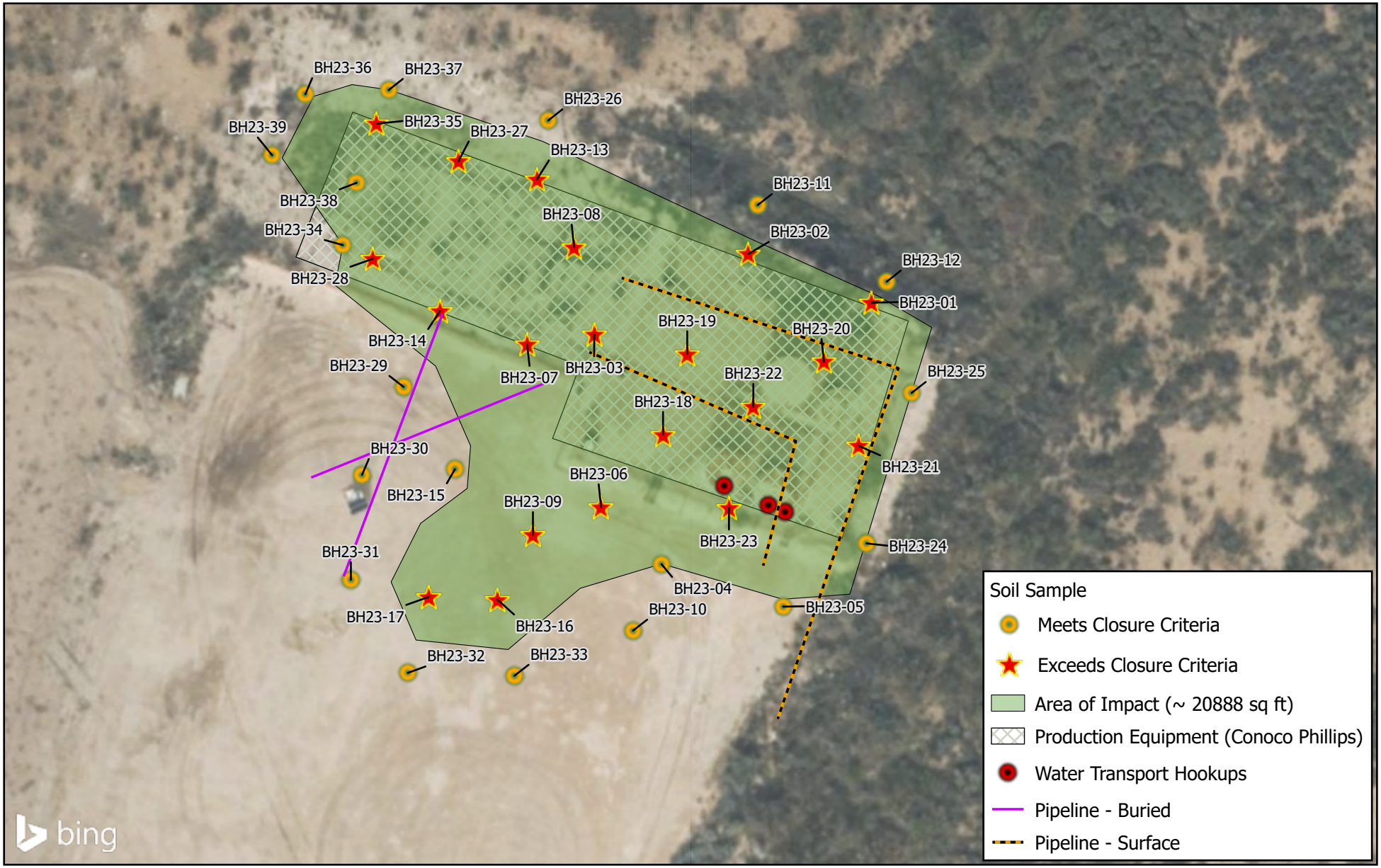
Sally Carttar, B. Sc.
PROJECT MANAGER, REPORT REVIEW

June 10, 2025
Date

Attachments

Attachment 1. Characterization and Excavation Sampling Site Schematics
Attachment 2. Field Screening and Laboratory Results Table
Attachment 3. Daily Field Reports with Photographs
Attachment 4. Laboratory Data Reports with Chain of Custody Forms
Attachment 5. Closure Criteria Research
Attachment 6. NMOCD C-141 Reports

ATTACHMENT 1



VERTEX

0 25 50 ft

NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Map Center:
Lat/Long: 32.35177°N, 104.064396°W

Date: Jun 04/25

N

Characterization Sampling Site Schematic
nAB1506436616, nAB1732026330, nAB1918455869
Union 35 Federal #001

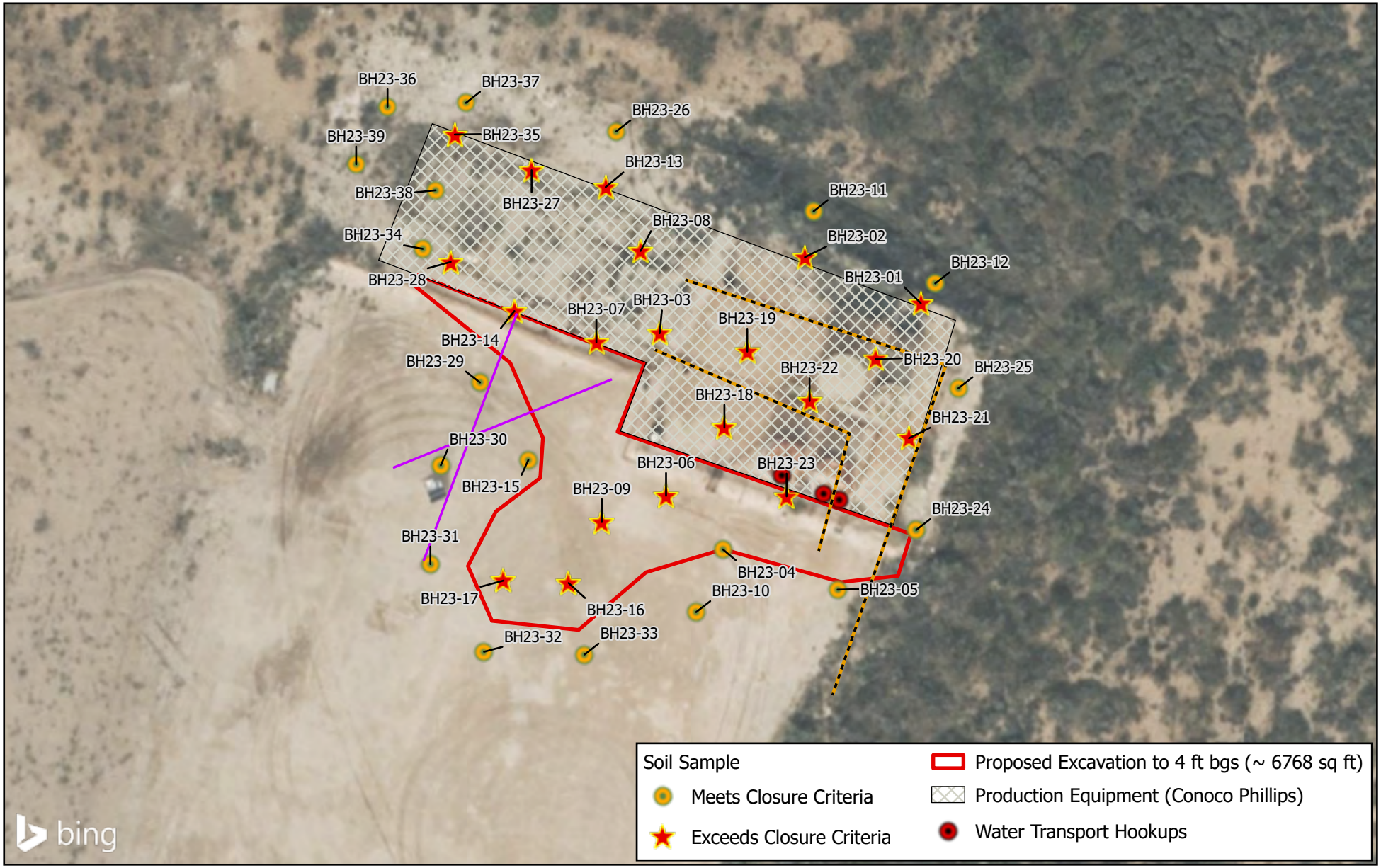
FIGURE: **1**

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, 2025. Site features from GPS, Vertex, 2025.

VERSATILITY. EXPERTISE.



VERTEX

0 25 50 ft

NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Map Center:
Lat/Long: 32.351764°N, 104.064461°W

Date: Jun 04/25

N

Proposed Excavation
nAB1506436616, nAB1732026330, nAB1918455869
Union 35 Federal #001

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, 2025. Site features from GPS, Vertex, 2025.

VERSATILITY. EXPERTISE.

ATTACHMENT 2

Client Name: Devon Energy Production Company, LP
Site Name: Union 35 Federal #001
NMOCD Tracking #: nAB1506436616, nAB1732026330, nAB1918455869
Project #: 23E-03635
Lab Reports: 2309290, 2309294, 2309400, 2309524, and 2309H60

Table 2. Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH23-01	0	September 4, 2023	0	58	33	ND	ND	ND	ND	ND	ND	ND	89
	2	September 4, 2023	0	39	1,809	ND	ND	ND	ND	ND	ND	ND	**850**
BH23-02	0	September 4, 2023	0	183	183	ND	ND	ND	ND	ND	ND	ND	220
	2	September 4, 2023	0	94	1,495	ND	ND	ND	ND	ND	ND	ND	**980**
BH23-03	0	September 4, 2023	1	268	3,830	ND	ND	ND	22	70	22	92	**1200**
	1	September 4, 2023	0	950	2,768	ND	ND	ND	150	520	**150**	**670**	**1200**
BH23-04	0	September 4, 2023	0	59	ND	ND	ND	ND	ND	ND	ND	ND	ND
	2	September 4, 2023	0	102	1,068	ND	ND	ND	ND	ND	ND	ND	460
BH23-05	0	September 4, 2023	45	91	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 4, 2023	0	68	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-06	0	September 4, 2023	1	76	11,902	ND	ND	ND	ND	ND	ND	ND	**6500**
	2	September 4, 2023	0	64	6,090	ND	ND	ND	ND	ND	ND	ND	**2600**
BH23-07	0	September 4, 2023	0	1,090	ND	ND	ND	ND	200	730	**200**	**930**	ND
	2	September 4, 2023	0	220	ND	ND	ND	ND	43	240	43	**283**	89
BH23-08	0	September 4, 2023	0	328	ND	ND	ND	ND	42	78	42	**120**	ND
	2	September 4, 2023	0	369	ND	ND	ND	ND	31	70	31	**101**	ND
BH23-09	0	September 4, 2023	4	1,195	6,950	ND	ND	ND	870	970	**870**	**1840**	**4000**
	1	September 4, 2023	1	126	1,599	ND	ND	ND	27	ND	27	27	**1300**
BH23-10	0	September 4, 2023	0	68	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 4, 2023	0	40	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-11	0	September 4, 2023	0	57	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1.5	September 4, 2023	0	37	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-12	0	September 4, 2023	0	62	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1.5	September 4, 2023	0	50	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-13	0	September 5, 2023	2	679	ND	ND	ND	ND	56	77	**143**	**220**	ND
	1	September 5, 2023	1	1,131	ND	ND	ND	ND	660	570	**660**	**1230**	ND
BH23-14	0	September 5, 2023	5	1,028	ND	ND	ND	ND	100	190	**100**	**290**	ND
	1	September 5, 2023	0	1,053	ND	ND	ND	ND	140	260	**140**	**400**	ND
BH23-15	0	September 5, 2023	0	76	801	ND	ND	ND	ND	ND	ND	ND	430
	2	September 5, 2023	0	54	1,102	ND	ND	ND	ND	ND	ND	ND	500
BH23-16	0	September 5, 2023	0	67	1,817	ND	ND	ND	ND	ND	ND	ND	**1000**
	1.5	September 5, 2023	0	58	2,583	ND	ND	ND	ND	ND	ND	ND	**1100**
BH23-17	0	September 5, 2023	0	62	2,514	ND	ND	ND	ND	ND	ND	ND	**1300**
	1.5	September 5, 2023	0	51	2,010	ND	ND	ND	ND	ND	ND	ND	**1300**
BH23-18	0	September 5, 2023	3	-	2,929	ND	ND	ND	ND	ND	ND	ND	**1800**
	1	September 5, 2023	0	-	ND	ND	ND	ND	150	460	**150**	**610**	63
BH23-19	0	September 5, 2023	0	-	2,059	ND	ND	ND	ND	ND	ND	ND	**1300**
	1.5	September 5, 2023	0	-	1,196	ND	ND	ND	ND	ND	ND	ND	**850**
BH23-20	0	September 5, 2023	0	-	8,079	ND	ND	ND	82	270	82	**352**	**5500**
	2	September 5, 2023	0	-	5,630	ND	ND	ND	34	190	34	**224**	**4500**
BH23-21	0	September 6, 2023	0		16,039	ND	ND	ND	ND	ND	ND	ND	**11000**
	1.5	September 6, 2023	0		7,226	ND	ND	ND	ND	110	**240**	**350**	**4700**
BH23-22	0	September 6, 2023	0		1,848	ND	ND	ND	ND	ND	ND	ND	**770**
	2	September 6, 2023	0		9,076	ND	ND	ND	ND	ND	ND	ND	**5600**
	4	September 6, 2023	0		8,216	ND	ND	ND	ND	ND	ND	ND	**7200**
BH23-23	0	September 6, 2023	0		28,629	ND	ND	ND	ND	ND	ND	ND	**22000**
	1.5	September 6, 2023	0		10,963	ND	ND	ND	19	ND	19	ND	**8100**
BH23-24	0	September 9, 2023	0	90	220	ND	ND	ND	ND	ND	ND	ND	110
	1.5	September 9, 2023	0	40	212	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Devon Energy Production Company, LP
Site Name: Union 35 Federal #001
NMOCD Tracking #: nAB1506436616, nAB1732026330, nAB1918455869
Project #: 23E-03635
Lab Reports: 2309290, 2309294, 2309400, 2309524, and 2309H60

Table 2. Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH23-25	0	September 9, 2023	0	83	80	ND	ND	ND	ND	ND	ND	ND	100
	2	September 9, 2023	0	37	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-26	0	September 9, 2023	0	95	466	ND	ND	ND	ND	ND	ND	ND	250
	1	September 9, 2023	0	80	414	ND	ND	ND	ND	ND	ND	ND	150
BH23-27	0	September 9, 2023	1	>1500	ND	ND	ND	ND	2500	2500	**2500**	**5000**	ND
	1.5	September 9, 2023	0	610	ND	ND	ND	ND	320	560	**320**	**880**	ND
BH23-28	0	September 9, 2023	0	361	ND	ND	ND	ND	110	170	**110**	**280**	ND
	1.5	September 9, 2023	0	200	ND	ND	ND	ND	27	53	27	80	ND
BH23-29	0	September 9, 2023	0	44	339	ND	ND	ND	ND	ND	ND	ND	160
	1	September 9, 2023	0	46	339	ND	ND	ND	ND	ND	ND	ND	140
BH23-30	0	September 9, 2023	0	70	107	ND	ND	ND	ND	ND	ND	ND	130
	1	September 9, 2023	0	55	135	ND	ND	ND	ND	ND	ND	ND	87
BH23-31	0	September 9, 2023	0	71	206	ND	ND	ND	ND	ND	ND	ND	96
	1.5	September 9, 2023	0	41	173	ND	ND	ND	ND	ND	ND	ND	110
BH23-32	0	September 9, 2023	0	61	344	ND	ND	ND	ND	ND	ND	ND	330
	1.5	September 9, 2023	0	57	421	ND	ND	ND	ND	ND	ND	ND	300
BH23-33	0	September 9, 2023	0	69	424	ND	ND	ND	ND	ND	ND	ND	200
	1	September 9, 2023	0	60	138	ND	ND	ND	ND	ND	ND	ND	130
BH23-34	0	September 28, 2023	0	113	368	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 28, 2023	0	40	307	ND	ND	ND	ND	ND	ND	ND	ND
BH23-35	0	September 28, 2023	1	1,288	177	ND	ND	ND	760	640	**760**	**1400**	ND
	1.5	September 28, 2023	0	609	187	ND	ND	ND	380	510	**380**	**890**	ND
BH23-36	0	September 28, 2023	0	61	129	ND	ND	ND	ND	ND	ND	ND	ND
	1.5	September 28, 2023	0	41	139	ND	ND	ND	ND	ND	ND	ND	ND
BH23-37	0	September 28, 2023	0	53	197	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 28, 2023	0	41	255	ND	ND	ND	ND	ND	ND	ND	ND
BH23-38	0	September 28, 2023	0	586	ND	ND	ND	ND	27	53	27	80	ND
	1	September 28, 2023	0	634	118	ND	ND	ND	29	62	29	91	ND
BH23-39	0	September 28, 2023	0	51	86	ND	ND	ND	ND	ND	ND	ND	ND
	1	September 28, 2023	0	37	85	ND	ND	ND	ND	ND	ND	ND	ND

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

ATTACHMENT 3

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/4/2023
Site Location Name:	Union 35 Fed 1	Report Run Date:	9/5/2023 12:30 AM
Client Contact Name:	Dale Woodall	API #:	30-015-24689
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/4/2023 7:45 AM
Departed Site	9/4/2023 4:55 PM

Field Notes

7:56 Completed JSA on arrival. On site to start delineation of release.

8:35 Mapped borehole locations and swept with magnetic locator prior to ground disturbance.

13:02 Started horizontal delineation outside of release area. Advanced BH23-01, BH23-02, BH23-04, and BH23-06 to 2 feet bgs. BH23-03 and BH23-05 hit refusal at 1 feet bgs.

16:51 Stepped out initial sample points. Ground was difficult to dig. Advanced BH23-07 and BH23-08 to 2 feet bgs, BH23-09 and BH23-10 to 1 feet bgs, and BH23-11 and BH23-12 to 1.5 feet bgs.

16:53 Will need to continue stepping out southwest edges.

Next Steps & Recommendations

1 Continue delineation.

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Northwest
	
South of treating equipment facing northeast.	Southwest of containment facing northwest. Advanced BH23-09 southwest of containment.

Viewing Direction: Southwest	**Viewing Direction**: Southwest
	
Northwest of tanks facing southwest. Advanced BH23-10 outside containment northwest of tanks.	Northeast of tanks facing southwest. Advanced BH23-11 outside containment northwest of tanks.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: Northeast
	
South of tanks and containment facing northeast. Advanced BH23-05 southwest of containment.	Southwest of tanks and containment facing northeast. Advanced BH23-04 southwest of containment.
Viewing Direction: Southeast	**Viewing Direction**: Northwest
	
Southwest of containment facing southeast. Advanced BH23-06 southwest of containment.	Northeast of tanks facing northwest. Advanced BH23-01 on containment northeast of tanks.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: Northwest
	
Northwest of tanks facing southeast. Advanced BH23-02 inside containment northwest of tanks.	West of tanks facing northwest. Advanced BH23-03 between pump and containment berm.
Viewing Direction: Southeast	**Viewing Direction**: Southeast
	
Southwest of treating equipment facing southeast. Advanced BH23-07 south of pump.	Northeast of treating equipment facing southeast. Advanced BH23-08 north of pump.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature: 

Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/5/2023
Site Location Name:	Union 35 Fed 1	Report Run Date:	9/6/2023 12:14 AM
Client Contact Name:	Dale Woodall	API #:	30-015-24689
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/5/2023 9:55 AM
Departed Site	9/5/2023 4:44 PM

Field Notes

10:06 Completed JSA on arrival. On site to continue horizontal delineation.

11:02 Mapped borehole locations and swept with magnetic locator prior to ground disturbance.

14:05 Advanced boreholes BH23-13 through BH23-16 for horizontal delineation to west and south. Field screening results exceeded NMOCD strictest criteria for chloride and/or TPH.

15:23 Advanced BH23-17 to step out for horizontal delineation. Remaining horizontal boreholes require expanded One Call. Revised One Call was submitted this morning.

15:29 Advanced BH23-18, BH23-19, and BH23-20 within containment around tanks to characterize center of release.

Next Steps & Recommendations

1. Continue collecting samples within containment.
2. Continue horizontal delineation once One Call clears.

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Northeast
	
Southwest of treating equipment facing northeast.	Southwest of equipment and containment facing northeast. advanced BH23-16 southwest of BH23-09.

Daily Site Visit Report

Viewing Direction: East

Southwest of equipment and containment facing east. advanced BH23-15 northwest of BH23-09.

Viewing Direction: Southeast

Northwest of equipment and containment facing southeast. advanced BH23-13 northwest of BH23-08.

Viewing Direction: Southeast

Southeast of treater facing southeast. Advanced BH23-14 inside containment berm south of treating equipment.

Viewing Direction: North

South of equipment and containment facing north. Advanced BH23-17 west of BH23-16.

Daily Site Visit Report

Viewing Direction: North

West of tanks facing north. Advanced BH23-18 inside containment west of tanks.

Viewing Direction: South

Northwest of tanks facing south. Advanced BH23-19 inside containment northwest of tanks.

Viewing Direction: Northwest

Northeast of tanks facing northwest. Advanced BH23-20 northeast of tanks.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature: 
Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/6/2023
Site Location Name:	Union 35 Fed 1	Report Run Date:	9/7/2023 1:48 AM
Client Contact Name:	Dale Woodall	API #:	30-015-24689
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/6/2023 6:52 AM
Departed Site	9/6/2023 12:38 PM

Field Notes

7:03 Completed JSA upon arrival. On site to continue characterization around release source within tank containment.

7:13 Confirmed borehole locations and swept with magnetic locator prior to ground disturbance.

9:03 Advanced boreholes BH23-21, BH23-22, and BH23-23 around tanks inside containment.

9:07 Spoke to Devon One Call locator (Lorenze) on site. He explained that the only buried Devon line on site is the abandoned flow line between the dry hole marker and the treating equipment. The remaining equipment (other than some surface flow lines) has been sold off to other operators.

10:39 Field screening results for samples collected from BH23-21, BH23-22, and BH22-23 exceeded NMOCD strictest criteria for chloride.

10:55 Vertical delineation will require heavy equipment to penetrate the rocky soil. Vertical delineation should be within battery containment. Equipment in place will make that very difficult.

11:05 Spoke to Chevron One Call representative. He explained that there are 2 lines running northeast-southwest on the northwest edge of the pad, and another running to the equipment on site. If we plan to excavate near Chevron lines we need to daylight them with a hydrovac. If we excavate within 10 feet of Chevron lines, a Chevron witness must be present (1 (505) 534-3787).

11:06 Horizontal delineation will proceed when One Calls are cleared.

12:35 Mapped 10 horizontal delineation points for when One Call is cleared.

Daily Site Visit Report

Next Steps & Recommendations

1 Continue horizontal delineation once expanded One Call clears.

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Northwest
	
Southwest of treating equipment facing northeast.	Southeast of tanks facing northwest. Advanced BH23-21 inside containment southeast of tanks.

Viewing Direction: Southeast	**Viewing Direction**: Southeast
	
Between tanks facing southeast. Advanced BH23-22 inside containment between tanks.	Southwest of tanks facing southeast. Advanced BH23-23 immediately southwest of tanks.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/8/2023
Site Location Name:	Union 35 Fed 1	Report Run Date:	9/9/2023 2:05 AM
Client Contact Name:	Dale Woodall	API #:	30-015-24689
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/8/2023 6:21 AM
Departed Site	9/8/2023 6:34 PM

Field Notes

6:35 Completed JSA on arrival. Expanded One Call has cleared. On site to continue horizontal delineation.

7:02 Marked borehole locations and swept with magnetic locator prior to ground disturbance.

12:39 Advanced boreholes BH23-24 through BH23-33 for horizontal delineation. Samples were collected at 0 and “terminal depth” depending on substrate. Borehole depths ranged from 1 to 2 feet bgs.

18:26 Talked to pumper and confirmed that Raybaw Operating LLC is the operator of the battery and treating equipment.

18:33 Field screening results for BH23-27 and BH23-28 exceeded NMOCD strictest threshold for TPH. Field screening results other horizontal delineation samples were below NMOCD strictest criteria pending laboratory results.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Southwest
	
Southwest of treating equipment facing northeast.	Southeast of tanks and containment facing southwest. Advanced BH23-25 outside containment southeast of tanks.

Daily Site Visit Report

Viewing Direction: North

Southeast of tanks and containment facing north. Advanced BH23-24 outside containment southeast of tanks.

Viewing Direction: Northeast

Southwest of tanks facing northeast. Operator of battery is Raybaw Operating LLC.

Viewing Direction: Northeast

Southwest of equipment and containment facing northeast. Advanced BH23-33 south of BH23-16.

Viewing Direction: Northeast

Southwest of equipment and containment facing northeast. Advanced BH23-32 south-southwest of BH23-17.

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: East
	
At dry hole marker facing northeast. Advanced BH23-31 west-northwest of BH23-17.	North of dry hole marker facing east. Advanced BH23-30 west of BH23-15.
Viewing Direction: East	**Viewing Direction**: Southeast
	
Southwest of equipment and containment facing east. Advanced BH23-39 southwest of BH23-14.	West end of treating equipment facing southeast. Advanced BH23-28 northwest of BH23-14, inside containment.

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: South
	
Northwest of treating equipment facing southeast. Advanced BH23-27 west-northwest of BH23-13.	Northwest of treating equipment facing south. Advanced BH23-26 north-northeast of BH23-13.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/28/2023
Site Location Name:	Union 35 Fed 1	Report Run Date:	9/29/2023 2:00 AM
Client Contact Name:	Dale Woodall	API #:	30-015-24689
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/28/2023 8:39 AM
Departed Site	9/28/2023 5:57 PM

Field Notes

8:49 Completed JSA on arrival. On site to renew One Call and complete horizontal delineation.

10:19 Refreshed white flags and paint and renewed One Call. Ticket 23SE280239.

10:45 Mapped additional borehole locations and swept with magnetic locator prior to ground disturbance.

13:29 Advanced BH23-34 and BH23-35 northwest of treating equipment for horizontal delineation. Samples were collected at surface and refusal depth (1 and 1.5 feet, respectively).

15:22 Fields screening results for samples from BH23-34 were below NMOCD strictest criteria for chloride and TPH. Field screening results for samples from BH23-35 exceeded NMOCD strictest criterion for TPH.

15:26 Advanced BH23-36 and BH23-37 to “step out” BH23-35. Samples were collected at surface and refusal depth (1.5 and 1 feet, respectively). Field screening results for samples from both boreholes were below NMOCD strictest criteria.

17:40 Advanced BH23-38 and BH23-39 for horizontal delineation. Field screening results for BH22-39 were below NMOCD strictest criteria. Horizontal delineation complete pending laboratory results.

Next Steps & Recommendations

1

Daily Site Visit Report

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Southeast
	
Southwest of treating equipment facing northeast.	Northwest of treating equipment facing southeast. Advanced BH23-34 outside fence west of treater.

Daily Site Visit Report

Viewing Direction: Southeast

Northwest of treating equipment facing southeast. Advanced BH23-35 outside fence north of treater.

Viewing Direction: South

Northwest of treating equipment facing south. Advanced BH23-36 west-northwest of BH23-35.

Viewing Direction: Southwest

North of treater facing southwest. Advanced BH23-37 northeast of BH23-35.

Viewing Direction: Northeast

Northwest of treater facing northeast. Advanced BH23-38 outside fence between BH23-34 and BH23-35.

Daily Site Visit Report

Viewing Direction: Southeast

Northwest of treating equipment facing southeast. Advanced BH23-39 northwest of BH23-38.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

ATTACHMENT 4

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 18, 2023

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Union 35 Federal 001 OrderNo.: 2309290

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 24 sample(s) on 9/7/2023 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-01 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 9:40:00 AM
Lab ID: 2309290-001 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	9/8/2023 5:44:01 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/8/2023 5:44:01 PM
Surr: DNOP	97.4	69-147		%Rec	1	9/8/2023 5:44:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2023 12:13:08 PM
Surr: BFB	97.3	15-244		%Rec	1	9/9/2023 12:13:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 12:13:08 PM
Toluene	ND	0.048		mg/Kg	1	9/9/2023 12:13:08 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/9/2023 12:13:08 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/9/2023 12:13:08 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	9/9/2023 12:13:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	89	60		mg/Kg	20	9/9/2023 9:37:54 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-01 2'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 9:55:00 AM
Lab ID: 2309290-002 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	9/8/2023 6:09:57 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/8/2023 6:09:57 PM
Surr: DNOP	102	69-147		%Rec	1	9/8/2023 6:09:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 12:36:47 PM
Surr: BFB	96.7	15-244		%Rec	1	9/9/2023 12:36:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 12:36:47 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 12:36:47 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 12:36:47 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/9/2023 12:36:47 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	9/9/2023 12:36:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	850	60		mg/Kg	20	9/9/2023 9:50:18 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 0'
Project: Union 35 Federal 001
Collection Date: 9/4/2023 10:05:00 AM
Lab ID: 2309290-003 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	9/8/2023 6:35:45 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/8/2023 6:35:45 PM
Surr: DNOP	101	69-147		%Rec	1	9/8/2023 6:35:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/9/2023 1:23:38 PM
Surr: BFB	99.9	15-244		%Rec	1	9/9/2023 1:23:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/9/2023 1:23:38 PM
Toluene	ND	0.050		mg/Kg	1	9/9/2023 1:23:38 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/9/2023 1:23:38 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/9/2023 1:23:38 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	9/9/2023 1:23:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	220	60		mg/Kg	20	9/9/2023 10:02:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-02 2'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 10:30:00 AM
Lab ID: 2309290-004 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	9/8/2023 7:01:19 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	9/8/2023 7:01:19 PM
Surr: DNOP	104	69-147		%Rec	1	9/8/2023 7:01:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 1:47:18 PM
Surr: BFB	95.9	15-244		%Rec	1	9/9/2023 1:47:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 1:47:18 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 1:47:18 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 1:47:18 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/9/2023 1:47:18 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	9/9/2023 1:47:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	980	60		mg/Kg	20	9/11/2023 9:41:25 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-03 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 9:15:00 AM
Lab ID: 2309290-005 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	22	8.8		mg/Kg	1	9/8/2023 7:26:46 PM
Motor Oil Range Organics (MRO)	70	44		mg/Kg	1	9/8/2023 7:26:46 PM
Surr: DNOP	105	69-147		%Rec	1	9/8/2023 7:26:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/9/2023 2:10:48 PM
Surr: BFB	100	15-244		%Rec	1	9/9/2023 2:10:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/9/2023 2:10:48 PM
Toluene	ND	0.050		mg/Kg	1	9/9/2023 2:10:48 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/9/2023 2:10:48 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/9/2023 2:10:48 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	9/9/2023 2:10:48 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1200	60		mg/Kg	20	9/11/2023 10:18:38 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 1'
Project: Union 35 Federal 001
Collection Date: 9/4/2023 10:10:00 AM
Lab ID: 2309290-006 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	150	95		mg/Kg	10	9/8/2023 7:52:12 PM
Motor Oil Range Organics (MRO)	520	470		mg/Kg	10	9/8/2023 7:52:12 PM
Surr: DNOP	0	69-147	S	%Rec	10	9/8/2023 7:52:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 2:34:16 PM
Surr: BFB	97.0	15-244		%Rec	1	9/9/2023 2:34:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 2:34:16 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 2:34:16 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 2:34:16 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/9/2023 2:34:16 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	9/9/2023 2:34:16 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1200	60		mg/Kg	20	9/11/2023 10:55:51 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 8:40:00 AM
Lab ID: 2309290-007 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	9/8/2023 8:17:38 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/8/2023 8:17:38 PM
Surr: DNOP	100	69-147		%Rec	1	9/8/2023 8:17:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 2:57:47 PM
Surr: BFB	98.5	15-244		%Rec	1	9/9/2023 2:57:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/9/2023 2:57:47 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 2:57:47 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 2:57:47 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/9/2023 2:57:47 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/9/2023 2:57:47 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 11:08:15 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 2'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 8:50:00 AM
Lab ID: 2309290-008 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/8/2023 8:42:57 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/8/2023 8:42:57 PM
Surr: DNOP	99.4	69-147		%Rec	1	9/8/2023 8:42:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/9/2023 3:21:15 PM
Surr: BFB	99.1	15-244		%Rec	1	9/9/2023 3:21:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 3:21:15 PM
Toluene	ND	0.047		mg/Kg	1	9/9/2023 3:21:15 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/9/2023 3:21:15 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/9/2023 3:21:15 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/9/2023 3:21:15 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	460	61		mg/Kg	20	9/11/2023 11:45:30 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-05 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 8:30:00 AM
Lab ID: 2309290-009 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	9/8/2023 9:08:19 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/8/2023 9:08:19 PM
Surr: DNOP	99.1	69-147		%Rec	1	9/8/2023 9:08:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 3:44:41 PM
Surr: BFB	98.2	15-244		%Rec	1	9/9/2023 3:44:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/9/2023 3:44:41 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 3:44:41 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 3:44:41 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/9/2023 3:44:41 PM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/9/2023 3:44:41 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 11:57:55 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-05 1'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 9:05:00 AM
Lab ID: 2309290-010 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/8/2023 9:33:31 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/8/2023 9:33:31 PM
Surr: DNOP	102	69-147		%Rec	1	9/8/2023 9:33:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2023 4:08:10 PM
Surr: BFB	99.2	15-244		%Rec	1	9/9/2023 4:08:10 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 4:08:10 PM
Toluene	ND	0.048		mg/Kg	1	9/9/2023 4:08:10 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/9/2023 4:08:10 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/9/2023 4:08:10 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	9/9/2023 4:08:10 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 12:10:19 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 9:00:00 AM
Lab ID: 2309290-011 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	9/8/2023 9:58:44 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	9/8/2023 9:58:44 PM
Surr: DNOP	97.5	69-147		%Rec	1	9/8/2023 9:58:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 4:31:40 PM
Surr: BFB	101	15-244		%Rec	1	9/9/2023 4:31:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 4:31:40 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 4:31:40 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 4:31:40 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/9/2023 4:31:40 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	9/9/2023 4:31:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	6500	300		mg/Kg	100	9/13/2023 8:07:28 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 2'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 9:25:00 AM
Lab ID: 2309290-012 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	9/8/2023 10:23:51 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	9/8/2023 10:23:51 PM
Surr: DNOP	96.3	69-147		%Rec	1	9/8/2023 10:23:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2023 4:55:07 PM
Surr: BFB	101	15-244		%Rec	1	9/9/2023 4:55:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 4:55:07 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2023 4:55:07 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2023 4:55:07 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/9/2023 4:55:07 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	9/9/2023 4:55:07 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	2600	150		mg/Kg	50	9/13/2023 8:19:52 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-07 0'
Project: Union 35 Federal 001
Collection Date: 9/4/2023 12:30:00 PM
Lab ID: 2309290-013 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	200	85		mg/Kg	10	9/8/2023 5:07:00 PM
Motor Oil Range Organics (MRO)	730	430		mg/Kg	10	9/8/2023 5:07:00 PM
Surr: DNOP	0	69-147	S	%Rec	10	9/8/2023 5:07:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 12:56:00 PM
Surr: BFB	99.5	15-244		%Rec	1	9/11/2023 12:56:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/11/2023 12:56:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 12:56:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 12:56:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/11/2023 12:56:00 PM
Surr: 4-Bromofluorobenzene	88.6	39.1-146		%Rec	1	9/11/2023 12:56:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 12:47:32 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-07 2'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 1:00:00 PM
Lab ID: 2309290-014 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	43	8.9		mg/Kg	1	9/8/2023 5:56:16 PM
Motor Oil Range Organics (MRO)	240	45		mg/Kg	1	9/8/2023 5:56:16 PM
Surr: DNOP	101	69-147		%Rec	1	9/8/2023 5:56:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/11/2023 2:01:00 PM
Surr: BFB	97.7	15-244		%Rec	1	9/11/2023 2:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 2:01:00 PM
Toluene	ND	0.048		mg/Kg	1	9/11/2023 2:01:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/11/2023 2:01:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/11/2023 2:01:00 PM
Surr: 4-Bromofluorobenzene	89.3	39.1-146		%Rec	1	9/11/2023 2:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	89	60		mg/Kg	20	9/11/2023 12:59:57 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 1:10:00 PM
Lab ID: 2309290-015 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	42	9.1		mg/Kg	1	9/8/2023 6:21:04 PM
Motor Oil Range Organics (MRO)	78	45		mg/Kg	1	9/8/2023 6:21:04 PM
Surr: DNOP	100	69-147		%Rec	1	9/8/2023 6:21:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/11/2023 3:06:00 PM
Surr: BFB	98.6	15-244		%Rec	1	9/11/2023 3:06:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/11/2023 3:06:00 PM
Toluene	ND	0.047		mg/Kg	1	9/11/2023 3:06:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/11/2023 3:06:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	9/11/2023 3:06:00 PM
Surr: 4-Bromofluorobenzene	91.2	39.1-146		%Rec	1	9/11/2023 3:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 1:12:21 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 2'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 1:35:00 PM
Lab ID: 2309290-016 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	31	8.9		mg/Kg	1	9/10/2023 12:11:13 AM
Motor Oil Range Organics (MRO)	70	45		mg/Kg	1	9/10/2023 12:11:13 AM
Surr: DNOP	108	69-147		%Rec	1	9/10/2023 12:11:13 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/11/2023 3:28:00 PM
Surr: BFB	103	15-244		%Rec	1	9/11/2023 3:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 3:28:00 PM
Toluene	ND	0.047		mg/Kg	1	9/11/2023 3:28:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/11/2023 3:28:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	9/11/2023 3:28:00 PM
Surr: 4-Bromofluorobenzene	91.0	39.1-146		%Rec	1	9/11/2023 3:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 1:24:45 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.		

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 12:45:00 PM
Lab ID: 2309290-017 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	870	86		mg/Kg	10	9/8/2023 7:10:41 PM
Motor Oil Range Organics (MRO)	970	430		mg/Kg	10	9/8/2023 7:10:41 PM
Surr: DNOP	94.0	69-147		%Rec	10	9/8/2023 7:10:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 3:49:00 PM
Surr: BFB	98.7	15-244		%Rec	1	9/11/2023 3:49:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/11/2023 3:49:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 3:49:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 3:49:00 PM
Xylenes, Total	0.14	0.098		mg/Kg	1	9/11/2023 3:49:00 PM
Surr: 4-Bromofluorobenzene	89.5	39.1-146		%Rec	1	9/11/2023 3:49:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	4000	150		mg/Kg	50	9/13/2023 8:32:16 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 1'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 1:15:00 PM
Lab ID: 2309290-018 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	27	9.9		mg/Kg	1	9/8/2023 7:35:18 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/8/2023 7:35:18 PM
Surr: DNOP	92.7	69-147		%Rec	1	9/8/2023 7:35:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 4:11:00 PM
Surr: BFB	102	15-244		%Rec	1	9/11/2023 4:11:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 4:11:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 4:11:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 4:11:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/11/2023 4:11:00 PM
Surr: 4-Bromofluorobenzene	92.4	39.1-146		%Rec	1	9/11/2023 4:11:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1300	59		mg/Kg	20	9/11/2023 2:14:24 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 1:25:00 PM
Lab ID: 2309290-019 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	9/8/2023 7:59:56 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/8/2023 7:59:56 PM
Surr: DNOP	90.3	69-147		%Rec	1	9/8/2023 7:59:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/11/2023 4:33:00 PM
Surr: BFB	103	15-244		%Rec	1	9/11/2023 4:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 4:33:00 PM
Toluene	ND	0.047		mg/Kg	1	9/11/2023 4:33:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/11/2023 4:33:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/11/2023 4:33:00 PM
Surr: 4-Bromofluorobenzene	91.2	39.1-146		%Rec	1	9/11/2023 4:33:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	59		mg/Kg	20	9/11/2023 2:26:48 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 1'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 2:00:00 PM
Lab ID: 2309290-020 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/8/2023 8:24:35 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/8/2023 8:24:35 PM
Surr: DNOP	85.4	69-147		%Rec	1	9/8/2023 8:24:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 4:55:00 PM
Surr: BFB	102	15-244		%Rec	1	9/11/2023 4:55:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 4:55:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 4:55:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 4:55:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/11/2023 4:55:00 PM
Surr: 4-Bromofluorobenzene	90.9	39.1-146		%Rec	1	9/11/2023 4:55:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 2:39:13 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 2:00:00 PM
Lab ID: 2309290-021 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	9/8/2023 8:49:13 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/8/2023 8:49:13 PM
Surr: DNOP	93.2	69-147		%Rec	1	9/8/2023 8:49:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/11/2023 5:16:00 PM
Surr: BFB	97.6	15-244		%Rec	1	9/11/2023 5:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 5:16:00 PM
Toluene	ND	0.048		mg/Kg	1	9/11/2023 5:16:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/11/2023 5:16:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/11/2023 5:16:00 PM
Surr: 4-Bromofluorobenzene	90.0	39.1-146		%Rec	1	9/11/2023 5:16:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	59		mg/Kg	20	9/11/2023 2:51:37 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 **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 2:10:00 PM
Lab ID: 2309290-022 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/8/2023 9:13:50 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/8/2023 9:13:50 PM
Surr: DNOP	92.0	69-147		%Rec	1	9/8/2023 9:13:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 5:38:00 PM
Surr: BFB	98.0	15-244		%Rec	1	9/11/2023 5:38:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/11/2023 5:38:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 5:38:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 5:38:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/11/2023 5:38:00 PM
Surr: 4-Bromofluorobenzene	89.8	39.1-146		%Rec	1	9/11/2023 5:38:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 3:04:01 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 0'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 2:20:00 PM
Lab ID: 2309290-023 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	9/8/2023 9:38:18 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/8/2023 9:38:18 PM
Surr: DNOP	91.9	69-147		%Rec	1	9/8/2023 9:38:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 6:22:00 PM
Surr: BFB	98.0	15-244		%Rec	1	9/11/2023 6:22:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 6:22:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 6:22:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 6:22:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/11/2023 6:22:00 PM
Surr: 4-Bromofluorobenzene	89.3	39.1-146		%Rec	1	9/11/2023 6:22:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	59		mg/Kg	20	9/11/2023 3:16:25 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309290**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/4/2023 2:25:00 PM
Lab ID: 2309290-024 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	9/8/2023 10:02:53 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	9/8/2023 10:02:53 PM
Surr: DNOP	94.2	69-147		%Rec	1	9/8/2023 10:02:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 6:43:00 PM
Surr: BFB	101	15-244		%Rec	1	9/11/2023 6:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 6:43:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 6:43:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 6:43:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/11/2023 6:43:00 PM
Surr: 4-Bromofluorobenzene	89.8	39.1-146		%Rec	1	9/11/2023 6:43:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 5:20:32 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77402**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **77402**	RunNo: **99580**								
Prep Date: **9/9/2023**	Analysis Date: **9/9/2023**	SeqNo: **3637205**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77402**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **77402**	RunNo: **99580**								
Prep Date: **9/9/2023**	Analysis Date: **9/9/2023**	SeqNo: **3637206**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.7	90	110			

Sample ID: **MB-77407**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **77407**	RunNo: **99611**								
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638374**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77407**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **77407**	RunNo: **99611**								
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638375**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.8	90	110			

Sample ID: **MB-77431**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **77431**	RunNo: **99611**								
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638404**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77431**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **77431**	RunNo: **99611**								
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638405**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77387**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77387**	RunNo: **99566**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636356** 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		81.3	69	147			

Sample ID: **LCS-77387**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77387**	RunNo: **99566**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.5	61.9	130			
Surr: DNOP	3.8		5.000		75.6	69	147			

Sample ID: **MB-77380**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77380**	RunNo: **99568**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636385** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.7		10.00		87.5	69	147			

Sample ID: **LCS-77380**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77380**	RunNo: **99568**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636386** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.4	61.9	130			
Surr: DNOP	4.0		5.000		79.8	69	147			

Sample ID: **2309290-012AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-06 2'**	Batch ID: **77380**	RunNo: **99568**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636410** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.8	48.83	0	95.7	54.2	135			
Surr: DNOP	4.7		4.883		97.1	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **2309290-012AMSD**	SampType: **MSD**		TestCode: **EPA Method 8015M/D: Diesel Range Organics**		
Client ID: **BH23-06 2'**	Batch ID: **77380**		RunNo: **99568**		
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**		SeqNo: **3636411**	Units: **mg/Kg**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.6	48.03	0	97.9	54.2	135	0.668	29.2	
Surr: DNOP	4.7		4.803		98.8	69	147	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77370**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77370**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636899** 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	90.9	70	130			
Surr: BFB	2000		1000		204	15	244			

Sample ID: **mb-77370**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77370**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636902** 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-77377**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638169** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.0	70	130			
Surr: BFB	2200		1000		218	15	244			

Sample ID: **mb-77377**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638170** 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: **2309290-013ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-07 0'**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638172** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.63	0	100	70	130			
Surr: BFB	2100		985.2		215	15	244			

Sample ID: **2309290-013amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-07 0'**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638173** 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#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **2309290-013amsd**	SampType: **MSD**		TestCode: **EPA Method 8015D: Gasoline Range**		
Client ID: **BH23-07 0'**	Batch ID: **77377**		RunNo: **99607**		
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**		SeqNo: **3638173**	Units: **mg/Kg**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.70	0	94.5	70	130	5.74	20	
Surr: BFB	2100		988.1		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#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **LCS-77370**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77370**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636991** 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	92.9	70	130			
Toluene	0.94	0.050	1.000	0	94.3	70	130			
Ethylbenzene	0.95	0.050	1.000	0	94.8	70	130			
Xylenes, Total	2.9	0.10	3.000	0	96.2	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	39.1	146			

Sample ID: **mb-77370**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77370**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636994** 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		110	39.1	146			

Sample ID: **lcs-77377**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638262** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.1	70	130			
Toluene	0.97	0.050	1.000	0	96.6	70	130			
Ethylbenzene	0.99	0.050	1.000	0	99.1	70	130			
Xylenes, Total	3.0	0.10	3.000	0	99.1	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.7	39.1	146			

Sample ID: **mb-77377**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638263** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.92		1.000		92.2	39.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2309290**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **2309290-014ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-07 2'**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638266** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.024	0.9533	0	83.3	70	130			
Toluene	0.81	0.048	0.9533	0.01501	83.3	70	130			
Ethylbenzene	0.83	0.048	0.9533	0	86.8	70	130			
Xylenes, Total	2.5	0.095	2.860	0	86.7	70	130			
Surr: 4-Bromofluorobenzene	0.86		0.9533		90.1	39.1	146			

Sample ID: **2309290-014amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-07 2'**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638267** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.024	0.9515	0	82.9	70	130	0.679	20	
Toluene	0.80	0.048	0.9515	0.01501	83.0	70	130	0.526	20	
Ethylbenzene	0.83	0.048	0.9515	0	86.8	70	130	0.173	20	
Xylenes, Total	2.5	0.095	2.854	0	86.8	70	130	0.121	20	
Surr: 4-Bromofluorobenzene	0.85		0.9515		89.8	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: 2309290

RcptNo: 1

Received By: Juan Rojas 9/7/2023 7:30:00 AM

Completed By: Tracy Casarrubias 9/7/2023 9:58:02 AM

Reviewed By: SCM 9/7/23

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: TMC 9/7/23

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 9/7/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	~~4.5~~ 5.4	Good	Yes	Yogi		

NW 9/7/23

Chain-of-Custody Record

Client: Vertex

(direct bill to Devon, work order 1007286201)

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 X Rush_72-hour rush

Project Name: Union 35 Federal #001

Project #: 23E-03635

Project Manager: Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman, S. Carttar

On Ice: ~~☐~~ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.4-0=5.4 4094

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. 2309290	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)
09/04/23	9:40	Soil	BH23-01 0'	1, 4oz jar		001	X	X					X			
09/04/23	9:55	Soil	BH23-01 2'	1, 4oz jar		002	X	X					X			
09/04/23	10:05	Soil	BH23-02 0'	1, 4oz jar		003	X	X					X			
09/04/23	10:30	Soil	BH23-02 2'	1, 4oz jar		004	X	X					X			
09/04/23	9:15	Soil	BH23-03 0'	1, 4oz jar		005	X	X					X			
09/04/23	10:10	Soil	BH23-03 1'	1, 4oz jar		006	X	X					X			
09/04/23	8:40	Soil	BH23-04 0'	1, 4oz jar		007	X	X					X			
09/04/23	8:50	Soil	BH23-04 2'	1, 4oz jar		008	X	X					X			
09/04/23	8:30	Soil	BH23-05 0'	1, 4oz jar		009	X	X					X			
09/04/23	9:05	Soil	BH23-05 1'	1, 4oz jar		010	X	X					X			
09/04/23	9:00	Soil	BH23-06 0'	1, 4oz jar		011	X	X					X			
09/04/23	9:25	Soil	BH23-06 2'	1, 4oz jar		012	X	X					X			

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9-5-23	07:00	Luke Pullman				
9/6/23	1900				9/6/23	930
9/6/23	1900			Courier	9/7/23	7:30

Remarks:
Direct bill to Devon work order 1007286201 Dale Woodall
cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

1/2

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

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon, work order 1007286201)

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 X **Rush_72-hour rush**

Project Name:

Union 35 Federal #001

Project #:

23E-03635

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman, S. Carttar

On Ice: ☐ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.4-0=5.4 Yogi

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. 2309290	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)
09/04/23	12:30	Soil	BH23-07 0'	1, 4oz jar		013	X	X					X			
09/04/23	13:00	Soil	BH23-07 2'	1, 4oz jar		014	X	X					X			
09/04/23	13:10	Soil	BH23-08 0'	1, 4oz jar		015	X	X					X			
09/04/23	13:35	Soil	BH23-08 2'	1, 4oz jar		016	X	X					X			
09/04/23	12:45	Soil	BH23-09 0'	1, 4oz jar		017	X	X					X			
09/04/23	13:15	Soil	BH23-09 1'	1, 4oz jar		018	X	X					X			
09/04/23	13:25	Soil	BH23-10 0'	1, 4oz jar		019	X	X					X			
09/04/23	14:00	Soil	BH23-10 1'	1, 4oz jar		020	X	X					X			
09/04/23	14:00	Soil	BH23-11 0'	1, 4oz jar		021	X	X					X			
09/04/23	14:10	Soil	BH23-11 1.5'	1, 4oz jar		022	X	X					X			
09/04/23	14:20	Soil	BH23-12 0'	1, 4oz jar		023	X	X					X			
09/04/23	14:25	Soil	BH23-12 1.5'	1, 4oz jar		024	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9-5-23	07:00	Lakin Pullman			9/6/23	930
9/6/23	1901			Courier	9/7/23	7:30

Analysis Request

Remarks:

Direct bill to Devon work order 1007286201 Dale Woodall

cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

2/2

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

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 18, 2023

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Union 35 Federal 001 OrderNo.: 2309294

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 16 sample(s) on 9/7/2023 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 0'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 11:10:00 AM
Lab ID: 2309294-001 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	56	9.1		mg/Kg	1	9/8/2023 10:52:09 PM
Motor Oil Range Organics (MRO)	77	46		mg/Kg	1	9/8/2023 10:52:09 PM
Surr: DNOP	104	69-147		%Rec	1	9/8/2023 10:52:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/11/2023 7:05:00 PM
Surr: BFB	97.1	15-244		%Rec	1	9/11/2023 7:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/11/2023 7:05:00 PM
Toluene	ND	0.050		mg/Kg	1	9/11/2023 7:05:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/11/2023 7:05:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/11/2023 7:05:00 PM
Surr: 4-Bromofluorobenzene	87.2	39.1-146		%Rec	1	9/11/2023 7:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 5:32:57 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-13 1'
Project: Union 35 Federal 001
Collection Date: 9/5/2023 11:15:00 AM
Lab ID: 2309294-002 **Matrix:** SOIL
Received Date: 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	660	95		mg/Kg	10	9/8/2023 11:41:22 PM
Motor Oil Range Organics (MRO)	570	480		mg/Kg	10	9/8/2023 11:41:22 PM
Surr: DNOP	0	69-147	S	%Rec	10	9/8/2023 11:41:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/11/2023 7:27:00 PM
Surr: BFB	103	15-244		%Rec	1	9/11/2023 7:27:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/11/2023 7:27:00 PM
Toluene	ND	0.047		mg/Kg	1	9/11/2023 7:27:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/11/2023 7:27:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	9/11/2023 7:27:00 PM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	9/11/2023 7:27:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 6:10:11 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 0'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 11:30:00 AM
Lab ID: 2309294-003 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	100	9.7		mg/Kg	1	9/10/2023 1:24:48 AM
Motor Oil Range Organics (MRO)	190	48		mg/Kg	1	9/10/2023 1:24:48 AM
Surr: DNOP	112	69-147		%Rec	1	9/10/2023 1:24:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/11/2023 7:48:00 PM
Surr: BFB	99.5	15-244		%Rec	1	9/11/2023 7:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 7:48:00 PM
Toluene	ND	0.048		mg/Kg	1	9/11/2023 7:48:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/11/2023 7:48:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/11/2023 7:48:00 PM
Surr: 4-Bromofluorobenzene	88.5	39.1-146		%Rec	1	9/11/2023 7:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 7:12:13 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-14 1'
Project: Union 35 Federal 001
Collection Date: 9/5/2023 11:50:00 AM
Lab ID: 2309294-004 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	140	20		mg/Kg	2	9/10/2023 12:35:43 AM
Motor Oil Range Organics (MRO)	260	98		mg/Kg	2	9/10/2023 12:35:43 AM
Surr: DNOP	106	69-147		%Rec	2	9/10/2023 12:35:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 8:10:00 PM
Surr: BFB	94.5	15-244		%Rec	1	9/11/2023 8:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 8:10:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 8:10:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 8:10:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/11/2023 8:10:00 PM
Surr: 4-Bromofluorobenzene	86.5	39.1-146		%Rec	1	9/11/2023 8:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/11/2023 7:24:38 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-15 0'
Project: Union 35 Federal 001
Collection Date: 9/5/2023 11:10:00 AM
Lab ID: 2309294-005 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	9/9/2023 12:55:07 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	9/9/2023 12:55:07 AM
Surr: DNOP	96.3	69-147		%Rec	1	9/9/2023 12:55:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/11/2023 8:32:00 PM
Surr: BFB	97.1	15-244		%Rec	1	9/11/2023 8:32:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 8:32:00 PM
Toluene	ND	0.048		mg/Kg	1	9/11/2023 8:32:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/11/2023 8:32:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/11/2023 8:32:00 PM
Surr: 4-Bromofluorobenzene	88.7	39.1-146		%Rec	1	9/11/2023 8:32:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	430	60		mg/Kg	20	9/11/2023 7:37:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-15 2'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 11:35:00 AM
Lab ID: 2309294-006 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/9/2023 1:19:45 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/9/2023 1:19:45 AM
Surr: DNOP	90.8	69-147		%Rec	1	9/9/2023 1:19:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 8:54:00 PM
Surr: BFB	105	15-244		%Rec	1	9/11/2023 8:54:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/11/2023 8:54:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 8:54:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 8:54:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/11/2023 8:54:00 PM
Surr: 4-Bromofluorobenzene	91.8	39.1-146		%Rec	1	9/11/2023 8:54:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	500	60		mg/Kg	20	9/11/2023 7:49:27 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-16 0'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 10:30:00 AM
Lab ID: 2309294-007 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/9/2023 1:44:20 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/9/2023 1:44:20 AM
Surr: DNOP	88.0	69-147		%Rec	1	9/9/2023 1:44:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 9:37:00 PM
Surr: BFB	104	15-244		%Rec	1	9/11/2023 9:37:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 9:37:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 9:37:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 9:37:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/11/2023 9:37:00 PM
Surr: 4-Bromofluorobenzene	90.4	39.1-146		%Rec	1	9/11/2023 9:37:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1000	60		mg/Kg	20	9/11/2023 8:01:51 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-016 1.5'
Project: Union 35 Federal 001
Collection Date: 9/5/2023 10:55:00 AM
Lab ID: 2309294-008 **Matrix:** SOIL
Received Date: 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/9/2023 2:08:57 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/9/2023 2:08:57 AM
Surr: DNOP	93.0	69-147		%Rec	1	9/9/2023 2:08:57 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/11/2023 9:59:00 PM
Surr: BFB	96.1	15-244		%Rec	1	9/11/2023 9:59:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 9:59:00 PM
Toluene	ND	0.049		mg/Kg	1	9/11/2023 9:59:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/11/2023 9:59:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/11/2023 9:59:00 PM
Surr: 4-Bromofluorobenzene	89.6	39.1-146		%Rec	1	9/11/2023 9:59:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1100	60		mg/Kg	20	9/11/2023 8:14:16 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-17 0'
Project: Union 35 Federal 001
Collection Date: 9/5/2023 1:35:00 PM
Lab ID: 2309294-009 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	9/10/2023 12:55:28 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/10/2023 12:55:28 PM
Surr: DNOP	76.4	69-147		%Rec	1	9/10/2023 12:55:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/11/2023 11:47:00 PM
Surr: BFB	97.8	15-244		%Rec	1	9/11/2023 11:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/11/2023 11:47:00 PM
Toluene	ND	0.048		mg/Kg	1	9/11/2023 11:47:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/11/2023 11:47:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/11/2023 11:47:00 PM
Surr: 4-Bromofluorobenzene	88.9	39.1-146		%Rec	1	9/11/2023 11:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1300	60		mg/Kg	20	9/11/2023 8:26:41 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-17 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 1:55:00 PM
Lab ID: 2309294-010 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/10/2023 1:19:35 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/10/2023 1:19:35 PM
Surr: DNOP	77.5	69-147		%Rec	1	9/10/2023 1:19:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/12/2023 12:52:00 AM
Surr: BFB	102	15-244		%Rec	1	9/12/2023 12:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/12/2023 12:52:00 AM
Toluene	ND	0.048		mg/Kg	1	9/12/2023 12:52:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	9/12/2023 12:52:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	9/12/2023 12:52:00 AM
Surr: 4-Bromofluorobenzene	88.9	39.1-146		%Rec	1	9/12/2023 12:52:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1300	60		mg/Kg	20	9/11/2023 8:39:05 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 0'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 2:20:00 PM
Lab ID: 2309294-011 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.3		mg/Kg	1	9/9/2023 1:44:51 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	9/9/2023 1:44:51 PM
Surr: DNOP	74.1	69-147		%Rec	1	9/9/2023 1:44:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/12/2023 1:58:00 AM
Surr: BFB	97.2	15-244		%Rec	1	9/12/2023 1:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/12/2023 1:58:00 AM
Toluene	ND	0.049		mg/Kg	1	9/12/2023 1:58:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	9/12/2023 1:58:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	9/12/2023 1:58:00 AM
Surr: 4-Bromofluorobenzene	89.1	39.1-146		%Rec	1	9/12/2023 1:58:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1800	60		mg/Kg	20	9/11/2023 8:51:30 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 1'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 2:50:00 PM
Lab ID: 2309294-012 **Matrix:** SOIL **Received Date:** 9/7/2023 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)	150	20		mg/Kg	2	9/11/2023 5:23:37 PM
Motor Oil Range Organics (MRO)	460	98		mg/Kg	2	9/11/2023 5:23:37 PM
Surr: DNOP	102	69-147		%Rec	2	9/11/2023 5:23:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/12/2023 2:19:00 AM
Surr: BFB	102	15-244		%Rec	1	9/12/2023 2:19:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/12/2023 2:19:00 AM
Toluene	ND	0.046		mg/Kg	1	9/12/2023 2:19:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/12/2023 2:19:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	9/12/2023 2:19:00 AM
Surr: 4-Bromofluorobenzene	88.3	39.1-146		%Rec	1	9/12/2023 2:19:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	63	60		mg/Kg	20	9/11/2023 9:03:53 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-19 0'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 2:25:00 PM
Lab ID: 2309294-013 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/9/2023 4:24:28 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/9/2023 4:24:28 PM
Surr: DNOP	80.9	69-147		%Rec	1	9/9/2023 4:24:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/12/2023 2:41:00 AM
Surr: BFB	98.5	15-244		%Rec	1	9/12/2023 2:41:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/12/2023 2:41:00 AM
Toluene	ND	0.046		mg/Kg	1	9/12/2023 2:41:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/12/2023 2:41:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	9/12/2023 2:41:00 AM
Surr: 4-Bromofluorobenzene	89.9	39.1-146		%Rec	1	9/12/2023 2:41:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1300	60		mg/Kg	20	9/11/2023 9:41:08 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-19 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 2:45:00 PM
Lab ID: 2309294-014 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/9/2023 4:49:02 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/9/2023 4:49:02 PM
Surr: DNOP	102	69-147		%Rec	1	9/9/2023 4:49:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/12/2023 3:03:00 AM
Surr: BFB	101	15-244		%Rec	1	9/12/2023 3:03:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/12/2023 3:03:00 AM
Toluene	ND	0.050		mg/Kg	1	9/12/2023 3:03:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	9/12/2023 3:03:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	9/12/2023 3:03:00 AM
Surr: 4-Bromofluorobenzene	91.5	39.1-146		%Rec	1	9/12/2023 3:03:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	850	60		mg/Kg	20	9/11/2023 9:53:32 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-20 0'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 3:00:00 PM
Lab ID: 2309294-015 **Matrix:** SOIL **Received Date:** 9/7/2023 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)	82	20		mg/Kg	2	9/11/2023 5:34:10 PM
Motor Oil Range Organics (MRO)	270	99		mg/Kg	2	9/11/2023 5:34:10 PM
Surr: DNOP	84.4	69-147		%Rec	2	9/11/2023 5:34:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/12/2023 3:24:00 AM
Surr: BFB	98.8	15-244		%Rec	1	9/12/2023 3:24:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/12/2023 3:24:00 AM
Toluene	ND	0.046		mg/Kg	1	9/12/2023 3:24:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/12/2023 3:24:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	9/12/2023 3:24:00 AM
Surr: 4-Bromofluorobenzene	89.4	39.1-146		%Rec	1	9/12/2023 3:24:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	5500	300		mg/Kg	100	9/13/2023 11:05:27 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 **2309294**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-20 2'
Project: Union 35 Federal 001 **Collection Date:** 9/5/2023 3:10:00 PM
Lab ID: 2309294-016 **Matrix:** SOIL **Received Date:** 9/7/2023 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)	34	20		mg/Kg	2	9/11/2023 5:44:50 PM
Motor Oil Range Organics (MRO)	190	99		mg/Kg	2	9/11/2023 5:44:50 PM
Surr: DNOP	97.8	69-147		%Rec	2	9/11/2023 5:44:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/12/2023 3:46:00 AM
Surr: BFB	101	15-244		%Rec	1	9/12/2023 3:46:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/12/2023 3:46:00 AM
Toluene	ND	0.049		mg/Kg	1	9/12/2023 3:46:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	9/12/2023 3:46:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	9/12/2023 3:46:00 AM
Surr: 4-Bromofluorobenzene	89.6	39.1-146		%Rec	1	9/12/2023 3:46:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	4500	150		mg/Kg	50	9/13/2023 9:09:30 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77431**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **77431**	RunNo: **99611**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638404** Units: **mg/Kg**

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

Sample ID: **LCS-77431**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **77431**	RunNo: **99611**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638405** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.2	90	110			

Sample ID: **MB-77441**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **77441**	RunNo: **99611**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638436** Units: **mg/Kg**

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

Sample ID: **LCS-77441**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **77441**	RunNo: **99611**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638437** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77387**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77387**	RunNo: **99566**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636356** 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		81.3	69	147			

Sample ID: **LCS-77387**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77387**	RunNo: **99566**
Prep Date: **9/8/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.5	61.9	130			
Surr: DNOP	3.8		5.000		75.6	69	147			

Sample ID: **2309294-008AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-016 1.5'**	Batch ID: **77387**	RunNo: **99566**
Prep Date: **9/8/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636381** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.0	45.00	0	108	54.2	135			
Surr: DNOP	3.2		4.500		70.8	69	147			

Sample ID: **2309294-008AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-016 1.5'**	Batch ID: **77387**	RunNo: **99566**
Prep Date: **9/8/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636382** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.3	46.55	0	110	54.2	135	4.58	29.2	
Surr: DNOP	3.3		4.655		71.3	69	147	0	0	

Sample ID: **MB-77397**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77397**	RunNo: **99567**
Prep Date: **9/8/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636417** 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		106	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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **LCS-77397**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77397**	RunNo: **99567**
Prep Date: **9/8/2023**	Analysis Date: **9/9/2023**	SeqNo: **3636418** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	66	10	50.00	0	131	61.9	130			S
Surr: DNOP	5.3		5.000		105	69	147			

Sample ID: **LCS-77397**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77397**	RunNo: **99571**
Prep Date: **9/8/2023**	Analysis Date: **9/10/2023**	SeqNo: **3636709** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	68	10	50.00	0	136	61.9	130			S
Surr: DNOP	6.2		5.000		124	69	147			

Sample ID: **LCS-77397**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77397**	RunNo: **99583**
Prep Date: **9/8/2023**	Analysis Date: **9/11/2023**	SeqNo: **3637514** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	67	10	50.00	0	134	61.9	130			S
Surr: DNOP	6.3		5.000		126	69	147			

Sample ID: **MB-77411**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77411**	RunNo: **99583**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638180** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		94.4	69	147			

Sample ID: **LCS-77411**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77411**	RunNo: **99583**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638188** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.1	61.9	130			
Surr: DNOP	4.7		5.000		93.6	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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **2309294-012AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-18 1'**	Batch ID: **77411**	RunNo: **99583**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638195** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	190	20	49.90	147.1	89.9	54.2	135			
Surr: DNOP	3.7		4.990		75.1	69	147			

Sample ID: **2309294-012AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-18 1'**	Batch ID: **77411**	RunNo: **99583**
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638196** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	190	20	49.75	147.1	76.8	54.2	135	3.54	29.2	
Surr: DNOP	3.8		4.975		76.4	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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77385**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638146** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.8	70	130			
Surr: BFB	2200		1000		220	15	244			

Sample ID: **mb-77385**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638147** 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: **2309294-009ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-17 0'**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3638149** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.8	23.97	0	96.0	70	130			
Surr: BFB	2100		958.8		223	15	244			

Sample ID: **2309294-009amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-17 0'**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3638150** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.79	0	93.9	70	130	2.91	20	
Surr: BFB	2000		951.5		213	15	244	0	0	

Sample ID: **lcs-77377**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638169** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.0	70	130			
Surr: BFB	2200		1000		218	15	244			

Sample ID: **mb-77377**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638170** 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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **mb-77377**	SampType: **MBLK**		TestCode: **EPA Method 8015D: Gasoline Range**		
Client ID: **PBS**	Batch ID: **77377**		RunNo: **99607**		
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**		SeqNo: **3638170**	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			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77377**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638262** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	95.1	70	130			
Toluene	0.97	0.050	1.000	0	96.6	70	130			
Ethylbenzene	0.99	0.050	1.000	0	99.1	70	130			
Xylenes, Total	3.0	0.10	3.000	0	99.1	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.7	39.1	146			

Sample ID: **mb-77377**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77377**	RunNo: **99607**
Prep Date: **9/7/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638263** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.92		1.000		92.2	39.1	146			

Sample ID: **lcs-77385**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638286** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.77	0.025	1.000	0	76.6	70	130			
Toluene	0.78	0.050	1.000	0	77.5	70	130			
Ethylbenzene	0.80	0.050	1.000	0	80.2	70	130			
Xylenes, Total	2.4	0.10	3.000	0	80.4	70	130			
Surr: 4-Bromofluorobenzene	0.91		1.000		90.9	39.1	146			

Sample ID: **mb-77385**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638287** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.90		1.000		89.8	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#: **2309294**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **2309294-010ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-17 1.5'**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3638290** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.024	0.9643	0	81.6	70	130			
Toluene	0.81	0.048	0.9643	0	83.6	70	130			
Ethylbenzene	0.83	0.048	0.9643	0	86.3	70	130			
Xylenes, Total	2.5	0.096	2.893	0	86.3	70	130			
Surr: 4-Bromofluorobenzene	0.88		0.9643		91.0	39.1	146			

Sample ID: **2309294-010amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-17 1.5'**	Batch ID: **77385**	RunNo: **99607**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3638291** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.024	0.9671	0	83.6	70	130	2.66	20	
Toluene	0.83	0.048	0.9671	0	86.0	70	130	3.22	20	
Ethylbenzene	0.85	0.048	0.9671	0	87.9	70	130	2.19	20	
Xylenes, Total	2.6	0.097	2.901	0	88.0	70	130	2.22	20	
Surr: 4-Bromofluorobenzene	0.88		0.9671		91.5	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: 2309294

RcptNo: 1

Received By: Juan Rojas 9/7/2023 7:30:00 AM

Completed By: Tracy Casarrubias 9/7/2023 10:16:04 AM

Reviewed By: SCM 9/7/23

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: TMC 9/7/23

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 9/7/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.5	Good	Yes	Yogi		

Chain of Custody Record

Client: Vertex

(direct bill to Devon, work order 1007286201)

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 X Rush_72-hour rush

Project Name:

Union 35 Federal #001

Project #:

23E-03635

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman, S. Carttar

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: (4oz

Cooler Temp(including CF): 4.5-0=4.5

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. (DMG 9/8/23) 2309285794	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)
09/05/23	11:10	Soil	BH23-13 0'	1, 4oz jar		001	X	X					X			
09/05/23	11:15	Soil	BH23-13 1'	1, 4oz jar		002	X	X					X			
09/05/23	11:30	Soil	BH23-14 0'	1, 4oz jar		003	X	X					X			
09/05/23	11:50	Soil	BH23-14 1'	1, 4oz jar		004	X	X					X			
09/05/23	11:10	Soil	BH23-15 0'	1, 4oz jar		005	X	X					X			
09/05/23	11:35	Soil	BH23-15 2'	1, 4oz jar		006	X	X					X			
09/05/23	10:30	Soil	BH23-16 0'	1, 4oz jar		007	X	X					X			
09/05/23	10:55	Soil	BH23-16 1.5'	1, 4oz jar		008	X	X					X			
09/05/23	13:35	Soil	BH23-17 0'	1, 4oz jar		009	X	X					X			
09/05/23	13:55	Soil	BH23-17 1.5'	1, 4oz jar		010	X	X					X			
09/05/23	14:20	Soil	BH23-18 0'	1, 4oz jar		011	X	X					X			
09/05/23	14:50	Soil	BH23-18 1'	1, 4oz jar		012	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9-6-23	0700				9/6/23	700
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/6/23	1900			Courier	9/7/23	7:30

Remarks:

Direct bill to Devon work order 1007286201 Dale Woodall

cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

1/2

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

Chain-of-Custody Record

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

Client: **Vertex**
(direct bill to Devon, work order 1007286201)
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 X Rush_72-hour rush
Project Name:
Union 35 Federal #001
Project #:
23E-03635
Project Manager:
Kent Stallings
kstallings@vertex.ca
Sampler: L. Pullman, S. Carttar
On Ice: ☑ Yes ☐ No
# of Coolers: 1 Yogi
Cooler Temp(including CF): 4.5-0=4.5

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2309287 94	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)					
09/05/23	14:25	Soil	BH23-19 0'	1, 4oz jar		013	X	X					X								
09/05/23	14:45	Soil	BH23-19 1.5'	1, 4oz jar		014	X	X					X								
09/05/23	15:00	Soil	BH23-20 0'	1, 4oz jar		015	X	X					X								
09/05/23	15:10	Soil	BH23-20 2'	1, 4oz jar		016	X	X					X								

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9-6-2023	07:00	[signature]	[signature]		9/6/23	700
9/6/23	1900	[signature]	[signature]	Courier	9/7/23	7:30

Remarks:
Direct bill to Devon work order 1007286201 Dale Woodall
cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report
2/2

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

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 18, 2023

Kent Stallings

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

RE: Union 35 Federal 001 OrderNo.: 2309400

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 7 sample(s) on 9/8/2023 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 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 **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-21 0'
Project: Union 35 Federal 001
Collection Date: 9/6/2023 7:20:00 AM
Lab ID: 2309400-001 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/11/2023 1:25:12 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/11/2023 1:25:12 PM
Surr: DNOP	101	69-147		%Rec	1	9/11/2023 1:25:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/13/2023 12:15:00 AM
Surr: BFB	97.6	15-244		%Rec	1	9/13/2023 12:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/13/2023 12:15:00 AM
Toluene	ND	0.047		mg/Kg	1	9/13/2023 12:15:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/13/2023 12:15:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/13/2023 12:15:00 AM
Surr: 4-Bromofluorobenzene	90.1	39.1-146		%Rec	1	9/13/2023 12:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	11000	600		mg/Kg	200	9/13/2023 9:21:54 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-21 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/6/2023 7:40:00 AM
Lab ID: 2309400-002 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	110	9.5		mg/Kg	1	9/11/2023 7:01:12 PM
Motor Oil Range Organics (MRO)	240	47		mg/Kg	1	9/11/2023 7:01:12 PM
Surr: DNOP	87.2	69-147		%Rec	1	9/11/2023 7:01:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/13/2023 12:36:00 AM
Surr: BFB	97.8	15-244		%Rec	1	9/13/2023 12:36:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/13/2023 12:36:00 AM
Toluene	ND	0.047		mg/Kg	1	9/13/2023 12:36:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/13/2023 12:36:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	9/13/2023 12:36:00 AM
Surr: 4-Bromofluorobenzene	89.6	39.1-146		%Rec	1	9/13/2023 12:36:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	4700	300		mg/Kg	100	9/13/2023 9:34:19 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 **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-22 0'
Project: Union 35 Federal 001 **Collection Date:** 9/6/2023 7:55:00 AM
Lab ID: 2309400-003 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/11/2023 1:46:56 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/11/2023 1:46:56 PM
Surr: DNOP	103	69-147		%Rec	1	9/11/2023 1:46:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	9/13/2023 12:58:00 AM
Surr: BFB	101	15-244		%Rec	1	9/13/2023 12:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	9/13/2023 12:58:00 AM
Toluene	ND	0.046		mg/Kg	1	9/13/2023 12:58:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	9/13/2023 12:58:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	9/13/2023 12:58:00 AM
Surr: 4-Bromofluorobenzene	92.7	39.1-146		%Rec	1	9/13/2023 12:58:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	770	60		mg/Kg	20	9/12/2023 3:40:57 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 **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-22 2'
Project: Union 35 Federal 001
Collection Date: 9/6/2023 8:00:00 AM
Lab ID: 2309400-004 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/11/2023 1:57:46 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/11/2023 1:57:46 PM
Surr: DNOP	102	69-147		%Rec	1	9/11/2023 1:57:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/13/2023 1:20:00 AM
Surr: BFB	102	15-244		%Rec	1	9/13/2023 1:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/13/2023 1:20:00 AM
Toluene	ND	0.048		mg/Kg	1	9/13/2023 1:20:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	9/13/2023 1:20:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	9/13/2023 1:20:00 AM
Surr: 4-Bromofluorobenzene	91.6	39.1-146		%Rec	1	9/13/2023 1:20:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	5600	300		mg/Kg	100	9/13/2023 9:46:43 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 **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-22 4'
Project: Union 35 Federal 001
Collection Date: 9/6/2023 8:10:00 AM
Lab ID: 2309400-005 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/11/2023 2:08:35 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/11/2023 2:08:35 PM
Surr: DNOP	106	69-147		%Rec	1	9/11/2023 2:08:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/13/2023 1:42:00 AM
Surr: BFB	102	15-244		%Rec	1	9/13/2023 1:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	9/13/2023 1:42:00 AM
Toluene	ND	0.050		mg/Kg	1	9/13/2023 1:42:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	9/13/2023 1:42:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	9/13/2023 1:42:00 AM
Surr: 4-Bromofluorobenzene	91.4	39.1-146		%Rec	1	9/13/2023 1:42:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	7200	300		mg/Kg	100	9/13/2023 10:53:03 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-23 0'
Project: Union 35 Federal 001
Collection Date: 9/6/2023 8:20:00 AM
Lab ID: 2309400-006 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/11/2023 2:22:47 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/11/2023 2:22:47 PM
Surr: DNOP	107	69-147		%Rec	1	9/11/2023 2:22:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/13/2023 2:04:00 AM
Surr: BFB	99.3	15-244		%Rec	1	9/13/2023 2:04:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/13/2023 2:04:00 AM
Toluene	ND	0.048		mg/Kg	1	9/13/2023 2:04:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	9/13/2023 2:04:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	9/13/2023 2:04:00 AM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	9/13/2023 2:04:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	22000	1500		mg/Kg	500	9/13/2023 12:32:19 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309400**
Date Reported: **9/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-23 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/6/2023 8:55:00 AM
Lab ID: 2309400-007 **Matrix:** SOIL **Received Date:** 9/8/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	19	9.9		mg/Kg	1	9/11/2023 2:33:33 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/11/2023 2:33:33 PM
Surr: DNOP	81.0	69-147		%Rec	1	9/11/2023 2:33:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/13/2023 2:25:00 AM
Surr: BFB	101	15-244		%Rec	1	9/13/2023 2:25:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	9/13/2023 2:25:00 AM
Toluene	ND	0.049		mg/Kg	1	9/13/2023 2:25:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	9/13/2023 2:25:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	9/13/2023 2:25:00 AM
Surr: 4-Bromofluorobenzene	90.0	39.1-146		%Rec	1	9/13/2023 2:25:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	8100	300		mg/Kg	100	9/13/2023 12:44:43 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical 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#: **2309400**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77441**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **77441**	RunNo: **99611**							
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638436**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77441**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **77441**	RunNo: **99611**							
Prep Date: **9/11/2023**	Analysis Date: **9/11/2023**	SeqNo: **3638437**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2309400**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77403**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77403**	RunNo: **99583**
Prep Date: **9/10/2023**	Analysis Date: **9/11/2023**	SeqNo: **3637513** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		96.7	69	147			

Sample ID: **LCS-77403**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77403**	RunNo: **99583**
Prep Date: **9/10/2023**	Analysis Date: **9/11/2023**	SeqNo: **3637515** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	105	61.9	130			
Surr: DNOP	4.9		5.000		97.6	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2309400**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77388**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77388**	RunNo: **99641**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3640020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.9	70	130			
Surr: BFB	2200		1000		218	15	244			

Sample ID: **mb-77388**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77388**	RunNo: **99641**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3640021** 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			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2309400**

18-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77388**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77388**	RunNo: **99641**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3640646** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.2	70	130			
Toluene	0.88	0.050	1.000	0	88.5	70	130			
Ethylbenzene	0.91	0.050	1.000	0	90.6	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.8	70	130			
Surr: 4-Bromofluorobenzene	0.94		1.000		93.8	39.1	146			

Sample ID: **mb-77388**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77388**	RunNo: **99641**
Prep Date: **9/8/2023**	Analysis Date: **9/12/2023**	SeqNo: **3640647** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		92.8	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.		

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: 2309400

RcptNo: 1

Received By: Juan Rojas 9/8/2023 7:15:00 AM

Completed By: Tracy Casarrubias 9/8/2023 8:07:48 AM

Reviewed By: JR 9/8/23

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 ☐	# 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 9/8/23

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions: Mailing address, phone number, and Email/Fax are missing on COC- TMC 9/8/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes	Yogi		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon, work order 1007286201)

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 X **Rush_72-hour rush**

Project Name:

Union 35 Federal #001

Project #:

23E-03635

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman, S. Carttar

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 1 Yogi

Cooler Temp(including CF): 2.2-0=2.2

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. 2309400	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)
09/06/23	7:20	Soil	BH23-21 0'	1, 4oz jar		001	X	X					X			
09/06/23	7:40	Soil	BH23-21 1.5'	1, 4oz jar		002	X	X					X			
09/06/23	7:55	Soil	BH23-22 0'	1, 4oz jar		003	X	X					X			
09/06/23	8:00	Soil	BH23-22 2'	1, 4oz jar		004	X	X					X			
09/06/23	8:10	Soil	BH23-22 4'	1, 4oz jar		005	X	X					X			
09/06/23	8:20	Soil	BH23-23 0'	1, 4oz jar		006	X	X					X			
09/06/23	8:55	Soil	BH23-23 1.5'	1, 4oz jar		007	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9-7-23	07:30	Dale Pullman			9/7/23	700
9/7/23	1900		Courier		9/8/23	7:15

Remarks:

Direct bill to Devon work order 1007286201 Dale Woodall

cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

1/1

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

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 25, 2023

Kent Stallings

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

RE: Union 35 Federal 001 OrderNo.: 2309524

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 20 sample(s) on 9/12/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-24 0'
Project: Union 35 Federal 001
Collection Date: 9/8/2023 11:05:00 AM
Lab ID: 2309524-001 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9.8		mg/Kg	1	9/13/2023 3:46:16 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/13/2023 3:46:16 PM
Surr: DNOP	97.0	69-147		%Rec	1	9/13/2023 3:46:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/14/2023 3:45:14 PM
Surr: BFB	96.7	15-244		%Rec	1	9/14/2023 3:45:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/14/2023 3:45:14 PM
Toluene	ND	0.049		mg/Kg	1	9/14/2023 3:45:14 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/14/2023 3:45:14 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/14/2023 3:45:14 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/14/2023 3:45:14 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	110	60		mg/Kg	20	9/14/2023 5:47:48 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-24 1.5'
Project: Union 35 Federal 001
Collection Date: 9/8/2023 12:20:00 PM
Lab ID: 2309524-002 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 4:18:20 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/13/2023 4:18:20 PM
Surr: DNOP	82.9	69-147		%Rec	1	9/13/2023 4:18:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 4:55:30 PM
Surr: BFB	96.5	15-244		%Rec	1	9/14/2023 4:55:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 4:55:30 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 4:55:30 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 4:55:30 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/14/2023 4:55:30 PM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	9/14/2023 4:55:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	9/14/2023 6:49:51 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-25 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 11:45:00 AM
Lab ID: 2309524-003 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 4:39:33 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/13/2023 4:39:33 PM
Surr: DNOP	106	69-147		%Rec	1	9/13/2023 4:39:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 6:05:42 PM
Surr: BFB	95.7	15-244		%Rec	1	9/14/2023 6:05:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 6:05:42 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 6:05:42 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 6:05:42 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/14/2023 6:05:42 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/14/2023 6:05:42 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	100	60		mg/Kg	20	9/14/2023 7:27:05 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-25 2'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 11:55:00 AM
Lab ID: 2309524-004 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9.8		mg/Kg	1	9/13/2023 4:50:10 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/13/2023 4:50:10 PM
Surr: DNOP	89.8	69-147		%Rec	1	9/13/2023 4:50:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/14/2023 6:29:09 PM
Surr: BFB	96.4	15-244		%Rec	1	9/14/2023 6:29:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 6:29:09 PM
Toluene	ND	0.047		mg/Kg	1	9/14/2023 6:29:09 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/14/2023 6:29:09 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/14/2023 6:29:09 PM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	9/14/2023 6:29:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	9/14/2023 7:39:29 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-26 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 11:20:00 AM
Lab ID: 2309524-005 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 5:00:49 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/13/2023 5:00:49 PM
Surr: DNOP	91.8	69-147		%Rec	1	9/13/2023 5:00:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/14/2023 6:52:35 PM
Surr: BFB	91.9	15-244		%Rec	1	9/14/2023 6:52:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/14/2023 6:52:35 PM
Toluene	ND	0.049		mg/Kg	1	9/14/2023 6:52:35 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/14/2023 6:52:35 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/14/2023 6:52:35 PM
Surr: 4-Bromofluorobenzene	103	39.1-146		%Rec	1	9/14/2023 6:52:35 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	250	60		mg/Kg	20	9/14/2023 7:51:53 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-26 1'
Project: Union 35 Federal 001
Collection Date: 9/8/2023 11:35:00 AM
Lab ID: 2309524-006 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 5:11:29 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/13/2023 5:11:29 PM
Surr: DNOP	91.0	69-147		%Rec	1	9/13/2023 5:11:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 7:16:05 PM
Surr: BFB	93.6	15-244		%Rec	1	9/14/2023 7:16:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 7:16:05 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 7:16:05 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 7:16:05 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/14/2023 7:16:05 PM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	9/14/2023 7:16:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	150	60		mg/Kg	20	9/14/2023 8:04:18 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-27 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 10:40:00 AM
Lab ID: 2309524-007 **Matrix:** SOIL **Received Date:** 9/12/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	2500	99		mg/Kg	10	9/13/2023 5:22:11 PM
Motor Oil Range Organics (MRO)	2500	500		mg/Kg	10	9/13/2023 5:22:11 PM
Surr: DNOP	0	69-147	S	%Rec	10	9/13/2023 5:22:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 7:39:22 PM
Surr: BFB	90.7	15-244		%Rec	1	9/14/2023 7:39:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 7:39:22 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 7:39:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 7:39:22 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/14/2023 7:39:22 PM
Surr: 4-Bromofluorobenzene	99.5	39.1-146		%Rec	1	9/14/2023 7:39:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	9/14/2023 8:16:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-27 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 11:05:00 AM
Lab ID: 2309524-008 **Matrix:** SOIL **Received Date:** 9/12/2023 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)	320	98		mg/Kg	10	9/13/2023 5:32:48 PM
Motor Oil Range Organics (MRO)	560	490		mg/Kg	10	9/13/2023 5:32:48 PM
Surr: DNOP	0	69-147	S	%Rec	10	9/13/2023 5:32:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 8:02:50 PM
Surr: BFB	91.9	15-244		%Rec	1	9/14/2023 8:02:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 8:02:50 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 8:02:50 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 8:02:50 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/14/2023 8:02:50 PM
Surr: 4-Bromofluorobenzene	102	39.1-146		%Rec	1	9/14/2023 8:02:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	9/14/2023 8:53:56 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-28 0'
Project: Union 35 Federal 001
Collection Date: 9/8/2023 10:10:00 AM
Lab ID: 2309524-009 **Matrix:** SOIL **Received Date:** 9/12/2023 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)	110	9.9		mg/Kg	1	9/13/2023 5:43:27 PM
Motor Oil Range Organics (MRO)	170	50		mg/Kg	1	9/13/2023 5:43:27 PM
Surr: DNOP	83.2	69-147		%Rec	1	9/13/2023 5:43:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/14/2023 8:26:17 PM
Surr: BFB	93.7	15-244		%Rec	1	9/14/2023 8:26:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 8:26:17 PM
Toluene	ND	0.047		mg/Kg	1	9/14/2023 8:26:17 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/14/2023 8:26:17 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/14/2023 8:26:17 PM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	9/14/2023 8:26:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	9/14/2023 9:06:20 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-28 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 10:30:00 AM
Lab ID: 2309524-010 **Matrix:** SOIL **Received Date:** 9/12/2023 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)	27	9.8		mg/Kg	1	9/13/2023 5:54:08 PM
Motor Oil Range Organics (MRO)	53	49		mg/Kg	1	9/13/2023 5:54:08 PM
Surr: DNOP	77.9	69-147		%Rec	1	9/13/2023 5:54:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/14/2023 8:49:39 PM
Surr: BFB	95.5	15-244		%Rec	1	9/14/2023 8:49:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/14/2023 8:49:39 PM
Toluene	ND	0.049		mg/Kg	1	9/14/2023 8:49:39 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/14/2023 8:49:39 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/14/2023 8:49:39 PM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/14/2023 8:49:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	9/14/2023 9:18:45 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-29 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 9:35:00 AM
Lab ID: 2309524-011 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 6:04:50 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	9/13/2023 6:04:50 PM
Surr: DNOP	102	69-147		%Rec	1	9/13/2023 6:04:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 9:59:46 PM
Surr: BFB	94.7	15-244		%Rec	1	9/14/2023 9:59:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 9:59:46 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 9:59:46 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 9:59:46 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/14/2023 9:59:46 PM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	9/14/2023 9:59:46 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	160	60		mg/Kg	20	9/14/2023 9:31:09 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-29 1'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 9:55:00 AM
Lab ID: 2309524-012 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 6:15:33 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/13/2023 6:15:33 PM
Surr: DNOP	86.8	69-147		%Rec	1	9/13/2023 6:15:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/14/2023 10:23:17 PM
Surr: BFB	94.4	15-244		%Rec	1	9/14/2023 10:23:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/14/2023 10:23:17 PM
Toluene	ND	0.050		mg/Kg	1	9/14/2023 10:23:17 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/14/2023 10:23:17 PM
Xylenes, Total	ND	0.10		mg/Kg	1	9/14/2023 10:23:17 PM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	9/14/2023 10:23:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	140	60		mg/Kg	20	9/14/2023 9:43:34 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-30 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 8:56:00 AM
Lab ID: 2309524-013 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 6:26:20 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/13/2023 6:26:20 PM
Surr: DNOP	91.7	69-147		%Rec	1	9/13/2023 6:26:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/14/2023 10:46:49 PM
Surr: BFB	92.5	15-244		%Rec	1	9/14/2023 10:46:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/14/2023 10:46:49 PM
Toluene	ND	0.049		mg/Kg	1	9/14/2023 10:46:49 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/14/2023 10:46:49 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/14/2023 10:46:49 PM
Surr: 4-Bromofluorobenzene	102	39.1-146		%Rec	1	9/14/2023 10:46:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	130	60		mg/Kg	20	9/14/2023 9:55:58 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-30 1
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 9:20:00 AM
Lab ID: 2309524-014 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 6:47:55 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/13/2023 6:47:55 PM
Surr: DNOP	81.3	69-147		%Rec	1	9/13/2023 6:47:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 11:10:19 PM
Surr: BFB	93.6	15-244		%Rec	1	9/14/2023 11:10:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 11:10:19 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 11:10:19 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 11:10:19 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/14/2023 11:10:19 PM
Surr: 4-Bromofluorobenzene	103	39.1-146		%Rec	1	9/14/2023 11:10:19 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	87	60		mg/Kg	20	9/14/2023 10:08:22 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-31 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 8:20:00 AM
Lab ID: 2309524-015 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 6:58:44 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/13/2023 6:58:44 PM
Surr: DNOP	85.6	69-147		%Rec	1	9/13/2023 6:58:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 11:33:49 PM
Surr: BFB	92.9	15-244		%Rec	1	9/14/2023 11:33:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 11:33:49 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 11:33:49 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 11:33:49 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/14/2023 11:33:49 PM
Surr: 4-Bromofluorobenzene	102	39.1-146		%Rec	1	9/14/2023 11:33:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	96	60		mg/Kg	20	9/14/2023 10:20:47 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-31 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 8:40:00 AM
Lab ID: 2309524-016 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 7:09:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/13/2023 7:09:35 PM
Surr: DNOP	82.9	69-147		%Rec	1	9/13/2023 7:09:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/14/2023 11:57:22 PM
Surr: BFB	92.8	15-244		%Rec	1	9/14/2023 11:57:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/14/2023 11:57:22 PM
Toluene	ND	0.048		mg/Kg	1	9/14/2023 11:57:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/14/2023 11:57:22 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/14/2023 11:57:22 PM
Surr: 4-Bromofluorobenzene	102	39.1-146		%Rec	1	9/14/2023 11:57:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	110	60		mg/Kg	20	9/14/2023 10:33:11 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-32 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 7:35:00 AM
Lab ID: 2309524-017 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 7:20:27 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/13/2023 7:20:27 PM
Surr: DNOP	93.7	69-147		%Rec	1	9/13/2023 7:20:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/15/2023 12:20:54 AM
Surr: BFB	96.2	15-244		%Rec	1	9/15/2023 12:20:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/15/2023 12:20:54 AM
Toluene	ND	0.050		mg/Kg	1	9/15/2023 12:20:54 AM
Ethylbenzene	ND	0.050		mg/Kg	1	9/15/2023 12:20:54 AM
Xylenes, Total	ND	0.10		mg/Kg	1	9/15/2023 12:20:54 AM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/15/2023 12:20:54 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	330	60		mg/Kg	20	9/14/2023 10:45:36 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 **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-32 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 8:05:00 AM
Lab ID: 2309524-018 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 7:31:20 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/13/2023 7:31:20 PM
Surr: DNOP	80.1	69-147		%Rec	1	9/13/2023 7:31:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/15/2023 12:44:29 AM
Surr: BFB	96.7	15-244		%Rec	1	9/15/2023 12:44:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/15/2023 12:44:29 AM
Toluene	ND	0.050		mg/Kg	1	9/15/2023 12:44:29 AM
Ethylbenzene	ND	0.050		mg/Kg	1	9/15/2023 12:44:29 AM
Xylenes, Total	ND	0.10		mg/Kg	1	9/15/2023 12:44:29 AM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	9/15/2023 12:44:29 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	300	60		mg/Kg	20	9/14/2023 11:22:50 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-33 0'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 7:10:00 AM
Lab ID: 2309524-019 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 7:42:13 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/13/2023 7:42:13 PM
Surr: DNOP	94.6	69-147		%Rec	1	9/13/2023 7:42:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/15/2023 1:07:59 AM
Surr: BFB	95.4	15-244		%Rec	1	9/15/2023 1:07:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/15/2023 1:07:59 AM
Toluene	ND	0.049		mg/Kg	1	9/15/2023 1:07:59 AM
Ethylbenzene	ND	0.049		mg/Kg	1	9/15/2023 1:07:59 AM
Xylenes, Total	ND	0.098		mg/Kg	1	9/15/2023 1:07:59 AM
Surr: 4-Bromofluorobenzene	105	39.1-146		%Rec	1	9/15/2023 1:07:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	200	60		mg/Kg	20	9/14/2023 11:35:15 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309524**
Date Reported: **9/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-33 1'
Project: Union 35 Federal 001 **Collection Date:** 9/8/2023 7:25:00 AM
Lab ID: 2309524-020 **Matrix:** SOIL **Received Date:** 9/12/2023 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	9/13/2023 7:53:07 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/13/2023 7:53:07 PM
Surr: DNOP	98.0	69-147		%Rec	1	9/13/2023 7:53:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/15/2023 1:31:32 AM
Surr: BFB	93.2	15-244		%Rec	1	9/15/2023 1:31:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/15/2023 1:31:32 AM
Toluene	ND	0.048		mg/Kg	1	9/15/2023 1:31:32 AM
Ethylbenzene	ND	0.048		mg/Kg	1	9/15/2023 1:31:32 AM
Xylenes, Total	ND	0.095		mg/Kg	1	9/15/2023 1:31:32 AM
Surr: 4-Bromofluorobenzene	103	39.1-146		%Rec	1	9/15/2023 1:31:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	130	60		mg/Kg	20	9/14/2023 11:47:40 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical 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#: **2309524**

25-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77514**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **77514**	RunNo: **99702**
Prep Date: **9/14/2023**	Analysis Date: **9/14/2023**	SeqNo: **3644916** Units: **mg/Kg**

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

Sample ID: **LCS-77514**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **77514**	RunNo: **99702**
Prep Date: **9/14/2023**	Analysis Date: **9/14/2023**	SeqNo: **3644917** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.6	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2309524**

25-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **2309524-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-24 0'**	Batch ID: **77465**	RunNo: **99659**
Prep Date: **9/12/2023**	Analysis Date: **9/13/2023**	SeqNo: **3641428** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	49.85	0	87.8	54.2	135			
Surr: DNOP	3.9		4.985		78.9	69	147			

Sample ID: **2309524-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-24 0'**	Batch ID: **77465**	RunNo: **99659**
Prep Date: **9/12/2023**	Analysis Date: **9/13/2023**	SeqNo: **3641429** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	9.7	48.73	0	102	54.2	135	12.3	29.2	
Surr: DNOP	4.6		4.873		93.9	69	147	0	0	

Sample ID: **LCS-77465**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77465**	RunNo: **99659**
Prep Date: **9/12/2023**	Analysis Date: **9/13/2023**	SeqNo: **3641456** 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	108	61.9	130			
Surr: DNOP	4.9		5.000		98.4	69	147			

Sample ID: **MB-77465**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77465**	RunNo: **99659**
Prep Date: **9/12/2023**	Analysis Date: **9/13/2023**	SeqNo: **3641458** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.7		10.00		96.7	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2309524**

25-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77459**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643229** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.8	70	130			
Surr: BFB	2000		1000		200	15	244			

Sample ID: **mb-77459**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.3	15	244			

Sample ID: **2309524-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-24 0'**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643648** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.44	0	96.1	70	130			
Surr: BFB	2000		977.5		207	15	244			

Sample ID: **2309524-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-24 0'**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643649** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.61	0	94.7	70	130	0.781	20	
Surr: BFB	2000		984.3		204	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#: **2309524**

25-Sep-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **LCS-77459**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643236** 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	93.6	70	130			
Toluene	0.96	0.050	1.000	0	95.7	70	130			
Ethylbenzene	0.96	0.050	1.000	0	96.2	70	130			
Xylenes, Total	2.9	0.10	3.000	0	98.1	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	39.1	146			

Sample ID: **mb-77459**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643237** 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			

Sample ID: **2309524-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-24 1.5'**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643673** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9671	0	94.9	70	130			
Toluene	0.95	0.048	0.9671	0	98.0	70	130			
Ethylbenzene	0.96	0.048	0.9671	0	99.2	70	130			
Xylenes, Total	2.9	0.097	2.901	0	100	70	130			
Surr: 4-Bromofluorobenzene	1.0		0.9671		106	39.1	146			

Sample ID: **2309524-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-24 1.5'**	Batch ID: **77459**	RunNo: **99690**
Prep Date: **9/12/2023**	Analysis Date: **9/14/2023**	SeqNo: **3643674** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9690	0	91.0	70	130	3.99	20	
Toluene	0.92	0.048	0.9690	0	94.9	70	130	3.09	20	
Ethylbenzene	0.93	0.048	0.9690	0	96.0	70	130	3.13	20	
Xylenes, Total	2.8	0.097	2.907	0	96.0	70	130	4.20	20	
Surr: 4-Bromofluorobenzene	1.0		0.9690		106	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: 2309524

RcptNo: 1

Received By: Tracy Casarrubias 9/12/2023 7:15:00 AM

Completed By: Tracy Casarrubias 9/12/2023 8:08:28 AM

Reviewed By: SCM 9/12/23

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: TM 9/12/23

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 9/12/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes	Yogi		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon, work order 1007286201)

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 X **Rush_72-hour rush**

Project Name:

Union 35 Federal #001

Project #:

23E-03635

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman, ~~S. Carter~~

On Ice: ☑ Yes ☐ No 4.0qt

# of Coolers: 1

Cooler Temp(including CF): 2.1 - 0 = 2.1 °

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. 2309524	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)
09/08/23	11:05	Soil	BH23-24 0'	1, 4oz jar		001	X	X					X			
09/08/23	12:20	Soil	BH23-24 1.5'	1, 4oz jar		002	X	X					X			
09/08/23	11:45	Soil	BH23-25 0'	1, 4oz jar		003	X	X					X			
09/08/23	11:55	Soil	BH23-25 2'	1, 4oz jar		004	X	X					X			
09/08/23	11:20	Soil	BH23-26 0'	1, 4oz jar		005	X	X					X			
09/08/23	11:35	Soil	BH23-26 1'	1, 4oz jar		006	X	X					X			
09/08/23	10:40	Soil	BH23-27 0'	1, 4oz jar		007	X	X					X			
09/08/23	11:05	Soil	BH23-27 1.5'	1, 4oz jar		008	X	X					X			
09/08/23	10:10	Soil	BH23-28 0'	1, 4oz jar		009	X	X					X			
09/08/23	10:30	Soil	BH23-28 1.5'	1, 4oz jar		010	X	X					X			
09/08/23	9:35	Soil	BH23-29 0'	1, 4oz jar		011	X	X					X			
09/08/23	9:55	Soil	BH23-29 1'	1, 4oz jar		012	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
9-11-23	0700	Luke Pullman	ACummings		9/11/23	0700
9/11/23	1900	ACummings		Courier	9/12/23	7:15

Remarks:

Direct bill to Devon work order 1007286201 Dale Woodall

cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

1/2

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

Chain-of-Custody Record

Client: Vertex

(direct bill to Devon, work order 1007286201)

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 X Rush_72-hour rush

Project Name:

Union 35 Federal #001

Project #:

23E-03635

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman, ~~S. Carter~~

On Ice: ☒ Yes ☐ No 4094

# of Coolers: 1

Cooler Temp(including CF): 2.1-0=2.1°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
09/08/23	8:50	Soil	BH23-30 0'	1, 4oz jar		013	X	X					X			
09/08/23	9:20	Soil	BH23-30 1'	1, 4oz jar		014	X	X					X			
09/08/23	8:20	Soil	BH23-31 0'	1, 4oz jar		015	X	X					X			
09/08/23	8:40	Soil	BH23-31 1.5'	1, 4oz jar		016	X	X					X			
09/08/23	7:35	Soil	BH23-32 0'	1, 4oz jar		017	X	X					X			
09/08/23	8:05	Soil	BH23-32 1.5'	1, 4oz jar		018	X	X					X			
09/08/23	7:10	Soil	BH23-33 0'	1, 4oz jar		019	X	X					X			
09/08/23	7:25	Soil	BH23-33 1'	1, 4oz jar		020	X	X					X			
	TMC	9/12/23														

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9-11-23	07:01				9/11/23	700
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/11/23	1900			courier	9/12/23	7:15

Remarks:

Direct bill to Devon work order 1007286201 Dale Woodall cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

2/2

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

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

October 11, 2023

Kent Stallings

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

RE: Union 35 Federal 001 OrderNo.: 2309H60

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 9/30/2023 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 **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-34 0'
Project: Union 35 Federal 001
Collection Date: 9/28/2023 10:50:00 AM
Lab ID: 2309H60-001 **Matrix:** SOIL
Received Date: 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/3/2023 7:29:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/3/2023 7:29:51 PM
Surr: DNOP	89.2	69-147		%Rec	1	10/3/2023 7:29:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/3/2023 9:21:00 PM
Surr: BFB	99.8	15-244		%Rec	1	10/3/2023 9:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/3/2023 9:21:00 PM
Toluene	ND	0.049		mg/Kg	1	10/3/2023 9:21:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/3/2023 9:21:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/3/2023 9:21:00 PM
Surr: 4-Bromofluorobenzene	89.8	39.1-146		%Rec	1	10/3/2023 9:21:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 2:46:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-34 1'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 11:10:00 AM
Lab ID: 2309H60-002 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	10/3/2023 7:54:16 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/3/2023 7:54:16 PM
Surr: DNOP	107	69-147		%Rec	1	10/3/2023 7:54:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/3/2023 9:43:00 PM
Surr: BFB	100	15-244		%Rec	1	10/3/2023 9:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/3/2023 9:43:00 PM
Toluene	ND	0.048		mg/Kg	1	10/3/2023 9:43:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/3/2023 9:43:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/3/2023 9:43:00 PM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	10/3/2023 9:43:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 2:59:03 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 **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-35 0'
Project: Union 35 Federal 001
Collection Date: 9/28/2023 11:20:00 AM
Lab ID: 2309H60-003 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	760	98		mg/Kg	10	10/4/2023 2:53:08 PM
Motor Oil Range Organics (MRO)	640	490		mg/Kg	10	10/4/2023 2:53:08 PM
Surr: DNOP	0	69-147	S	%Rec	10	10/4/2023 2:53:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/3/2023 10:04:00 PM
Surr: BFB	96.9	15-244		%Rec	1	10/3/2023 10:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	10/3/2023 10:04:00 PM
Toluene	ND	0.049		mg/Kg	1	10/3/2023 10:04:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/3/2023 10:04:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/3/2023 10:04:00 PM
Surr: 4-Bromofluorobenzene	87.6	39.1-146		%Rec	1	10/3/2023 10:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 3:11:25 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-35 1.5'
Project: Union 35 Federal 001
Collection Date: 9/28/2023 11:35:00 AM
Lab ID: 2309H60-004 **Matrix:** SOIL
Received Date: 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	380	97		mg/Kg	10	10/4/2023 3:17:09 PM
Motor Oil Range Organics (MRO)	510	480		mg/Kg	10	10/4/2023 3:17:09 PM
Surr: DNOP	0	69-147	S	%Rec	10	10/4/2023 3:17:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/3/2023 10:48:00 PM
Surr: BFB	95.9	15-244		%Rec	1	10/3/2023 10:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	10/3/2023 10:48:00 PM
Toluene	ND	0.049		mg/Kg	1	10/3/2023 10:48:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/3/2023 10:48:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	10/3/2023 10:48:00 PM
Surr: 4-Bromofluorobenzene	88.0	39.1-146		%Rec	1	10/3/2023 10:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	59		mg/Kg	20	10/4/2023 3:23:46 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 **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-36 0'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 1:45:00 PM
Lab ID: 2309H60-005 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	10/3/2023 9:31:53 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/3/2023 9:31:53 PM
Surr: DNOP	97.0	69-147		%Rec	1	10/3/2023 9:31:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/3/2023 11:09:00 PM
Surr: BFB	102	15-244		%Rec	1	10/3/2023 11:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/3/2023 11:09:00 PM
Toluene	ND	0.048		mg/Kg	1	10/3/2023 11:09:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/3/2023 11:09:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/3/2023 11:09:00 PM
Surr: 4-Bromofluorobenzene	90.3	39.1-146		%Rec	1	10/3/2023 11:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 3:36:07 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-36 1.5'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 2:00:00 PM
Lab ID: 2309H60-006 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/3/2023 9:56:14 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/3/2023 9:56:14 PM
Surr: DNOP	103	69-147		%Rec	1	10/3/2023 9:56:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/3/2023 11:31:00 PM
Surr: BFB	99.5	15-244		%Rec	1	10/3/2023 11:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/3/2023 11:31:00 PM
Toluene	ND	0.049		mg/Kg	1	10/3/2023 11:31:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/3/2023 11:31:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/3/2023 11:31:00 PM
Surr: 4-Bromofluorobenzene	91.2	39.1-146		%Rec	1	10/3/2023 11:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 3:48:28 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-37 0'
Project: Union 35 Federal 001
Collection Date: 9/28/2023 2:05:00 PM
Lab ID: 2309H60-007 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/3/2023 10:20:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/3/2023 10:20:35 PM
Surr: DNOP	98.4	69-147		%Rec	1	10/3/2023 10:20:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/3/2023 11:53:00 PM
Surr: BFB	101	15-244		%Rec	1	10/3/2023 11:53:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/3/2023 11:53:00 PM
Toluene	ND	0.048		mg/Kg	1	10/3/2023 11:53:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/3/2023 11:53:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/3/2023 11:53:00 PM
Surr: 4-Bromofluorobenzene	89.2	39.1-146		%Rec	1	10/3/2023 11:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	61		mg/Kg	20	10/4/2023 4:00:49 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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 **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-37 1'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 2:20:00 PM
Lab ID: 2309H60-008 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	10/3/2023 10:44:54 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	10/3/2023 10:44:54 PM
Surr: DNOP	94.0	69-147		%Rec	1	10/3/2023 10:44:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/4/2023 12:15:00 AM
Surr: BFB	99.7	15-244		%Rec	1	10/4/2023 12:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/4/2023 12:15:00 AM
Toluene	ND	0.049		mg/Kg	1	10/4/2023 12:15:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	10/4/2023 12:15:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	10/4/2023 12:15:00 AM
Surr: 4-Bromofluorobenzene	89.3	39.1-146		%Rec	1	10/4/2023 12:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 4:37:52 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 **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-38 0'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 3:35:00 PM
Lab ID: 2309H60-009 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	27	10		mg/Kg	1	10/4/2023 3:41:12 PM
Motor Oil Range Organics (MRO)	53	50		mg/Kg	1	10/4/2023 3:41:12 PM
Surr: DNOP	101	69-147		%Rec	1	10/4/2023 3:41:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/4/2023 12:36:00 AM
Surr: BFB	99.4	15-244		%Rec	1	10/4/2023 12:36:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/4/2023 12:36:00 AM
Toluene	ND	0.048		mg/Kg	1	10/4/2023 12:36:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/4/2023 12:36:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	10/4/2023 12:36:00 AM
Surr: 4-Bromofluorobenzene	90.6	39.1-146		%Rec	1	10/4/2023 12:36:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 4:50:12 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-38 1'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 3:50:00 PM
Lab ID: 2309H60-010 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	29	9.5		mg/Kg	1	10/4/2023 4:05:10 PM
Motor Oil Range Organics (MRO)	62	48		mg/Kg	1	10/4/2023 4:05:10 PM
Surr: DNOP	99.3	69-147		%Rec	1	10/4/2023 4:05:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	10/4/2023 12:58:00 AM
Surr: BFB	99.5	15-244		%Rec	1	10/4/2023 12:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	10/4/2023 12:58:00 AM
Toluene	ND	0.050		mg/Kg	1	10/4/2023 12:58:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	10/4/2023 12:58:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	10/4/2023 12:58:00 AM
Surr: 4-Bromofluorobenzene	90.0	39.1-146		%Rec	1	10/4/2023 12:58:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 5:02:33 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-39 0'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 4:40:00 PM
Lab ID: 2309H60-011 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/4/2023 12:21:49 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/4/2023 12:21:49 AM
Surr: DNOP	95.4	69-147		%Rec	1	10/4/2023 12:21:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/4/2023 1:19:00 AM
Surr: BFB	99.1	15-244		%Rec	1	10/4/2023 1:19:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	10/4/2023 1:19:00 AM
Toluene	ND	0.048		mg/Kg	1	10/4/2023 1:19:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	10/4/2023 1:19:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	10/4/2023 1:19:00 AM
Surr: 4-Bromofluorobenzene	87.6	39.1-146		%Rec	1	10/4/2023 1:19:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 5:14:54 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 **2309H60**
Date Reported: **10/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-39 1'
Project: Union 35 Federal 001 **Collection Date:** 9/28/2023 4:45:00 PM
Lab ID: 2309H60-012 **Matrix:** SOIL **Received Date:** 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	10/4/2023 1:10:08 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/4/2023 1:10:08 AM
Surr: DNOP	96.6	69-147		%Rec	1	10/4/2023 1:10:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	10/4/2023 1:41:00 AM
Surr: BFB	100	15-244		%Rec	1	10/4/2023 1:41:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	10/4/2023 1:41:00 AM
Toluene	ND	0.047		mg/Kg	1	10/4/2023 1:41:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	10/4/2023 1:41:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	10/4/2023 1:41:00 AM
Surr: 4-Bromofluorobenzene	90.0	39.1-146		%Rec	1	10/4/2023 1:41:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **KCB**
Chloride	ND	60		mg/Kg	20	10/4/2023 5:27:15 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2309H60**

11-Oct-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77942**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **77942**	RunNo: **100228**							
Prep Date: **10/4/2023**	Analysis Date: **10/4/2023**	SeqNo: **3669491**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77942**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **77942**	RunNo: **100228**							
Prep Date: **10/4/2023**	Analysis Date: **10/4/2023**	SeqNo: **3669492**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.7	90	110			

Sample ID: **MB-77946**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **77946**	RunNo: **100228**							
Prep Date: **10/4/2023**	Analysis Date: **10/4/2023**	SeqNo: **3669493**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-77946**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **77946**	RunNo: **100228**							
Prep Date: **10/4/2023**	Analysis Date: **10/4/2023**	SeqNo: **3669494**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.8	90	110			

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#: **2309H60**

11-Oct-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **MB-77895**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77895**	RunNo: **100187**
Prep Date: **10/2/2023**	Analysis Date: **10/3/2023**	SeqNo: **3667657** 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		118	69	147			

Sample ID: **LCS-77895**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77895**	RunNo: **100187**
Prep Date: **10/2/2023**	Analysis Date: **10/3/2023**	SeqNo: **3667658** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	107	61.9	130			
Surr: DNOP	5.3		5.000		107	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#: **2309H60**

11-Oct-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77886**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77886**	RunNo: **100169**
Prep Date: **10/2/2023**	Analysis Date: **10/3/2023**	SeqNo: **3667273** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.3	70	130			
Surr: BFB	2300		1000		229	15	244			

Sample ID: **mb-77886**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77886**	RunNo: **100169**
Prep Date: **10/2/2023**	Analysis Date: **10/3/2023**	SeqNo: **3667275** 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-77917**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77917**	RunNo: **100246**
Prep Date: **10/3/2023**	Analysis Date: **10/5/2023**	SeqNo: **3671342** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		221	15	244			

Sample ID: **mb-77917**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77917**	RunNo: **100246**
Prep Date: **10/3/2023**	Analysis Date: **10/5/2023**	SeqNo: **3671345** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		98.6	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#: **2309H60**

11-Oct-23

Client: Vertex Resources Services, Inc.

Project: Union 35 Federal 001

Sample ID: **lcs-77886**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77886**	RunNo: **100246**
Prep Date: **10/2/2023**	Analysis Date: **10/5/2023**	SeqNo: **3671285** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.3	70	130			
Toluene	0.91	0.050	1.000	0	90.6	70	130			
Ethylbenzene	0.92	0.050	1.000	0	92.4	70	130			
Xylenes, Total	2.8	0.10	3.000	0	92.4	70	130			
Surr: 4-Bromofluorobenzene	0.91		1.000		91.4	39.1	146			

Sample ID: **mb-77886**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77886**	RunNo: **100246**
Prep Date: **10/2/2023**	Analysis Date: **10/5/2023**	SeqNo: **3671286** 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: **lcs-77917**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77917**	RunNo: **100246**
Prep Date: **10/3/2023**	Analysis Date: **10/5/2023**	SeqNo: **3671299** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	39.1	146			

Sample ID: **mb-77917**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77917**	RunNo: **100246**
Prep Date: **10/3/2023**	Analysis Date: **10/5/2023**	SeqNo: **3671300** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.88		1.000		88.2	39.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: 2309H60

RcptNo: 1

Received By: Tracy Casarrubias 9/30/2023 8:10:00 AM

Completed By: Tracy Casarrubias 9/30/2023 8:55:19 AM

Reviewed By: JN 10/2/23

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: TMC 9/30/23

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 9/30/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes	Yogi		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon, work order 1007286201)

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 X **Rush_72-hour rush**

Project Name:
Union 35 Federal #001

Project #:
23E-03635

Project Manager:
Kent Stallings
kstallings@vertex.ca

Sampler: L. Pullman
On Ice: X Yes ☐ No yogi
# of Coolers: 1
Cooler Temp(including CF): 3.0 +0.1 = 3.1°c

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2309H60	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)
09/28/23	10:50	Soil	BH23-34 0'	1, 4oz jar		001	X	X					X			
09/28/23	11:10	Soil	BH23-34 1'	1, 4oz jar		002	X	X					X			
09/28/23	11:20	Soil	BH23-35 0'	1, 4oz jar		003	X	X					X			
09/28/23	11:35	Soil	BH23-35 1.5'	1, 4oz jar		004	X	X					X			
09/28/23	13:45	Soil	BH23-36 0'	1, 4oz jar		005	X	X					X			
09/28/23	14:00	Soil	BH23-36 1.5'	1, 4oz jar		006	X	X					X			
09/28/23	14:05	Soil	BH23-37 0'	1, 4oz jar		007	X	X					X			
09/28/23	14:20	Soil	BH23-37 1'	1, 4oz jar		008	X	X					X			
09/28/23	15:35	Soil	BH23-38 0'	1, 4oz jar		009	X	X					X			
09/28/23	15:50	Soil	BH23-38 1'	1, 4oz jar		010	X	X					X			
09/28/23	16:40	Soil	BH23-39 0'	1, 4oz jar		011	X	X					X			
09/28/23	16:45	Soil	BH23-39 1'	1, 4oz jar		012	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9-29-23	07:30	Sabrina Pullman			9/29/23	700
9/29/23	1900			Courier	9/30/23	8:10

Remarks:
Direct bill to Devon work order 1007286201 Dale Woodall
cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

1/1

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

Closure Criteria Determination			
Site Name: Union 35 Federal #001			
Spill Coordinates: 32.351796,-104.064387		**X: 588036**	**Y: 3579815**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	**64**	feet
	Distance between release and nearest DTGW reference	**158**	feet
		0.02	miles
	Date of nearest DTGW reference measurement	**December 27, 2022**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	1,688	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	18,109	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	15,578	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**	9,607	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	1,702	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	**45,104**	feet
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
	Distance between release and nearest unstable area	**22,252**	feet
10	Within a 100-year Floodplain	>500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**6,259**	feet
11	Soil Type	Gravelly fine sandy loam, indurated	
12	Ecological Classification	Shallow Sandy	
13	Geology	Piedmont alluvial deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<50' 51-100' >100'

Plate - 1 Union 35 Federal #001 OCD Well Locations

6/2/2025, 10:27:36 AM

OSE Water PODs

Karst Occurrence Potential

Medium

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

BLM, OCD, New Mexico Tech, OCD, Maxar

New Mexico Oil Conservation Division

NM OCD Oil and Gas Map. http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75: New Mexico Oil Conservation Division

Water Column/Average Depth to Water

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet) (In feet) (In feet)

POD Number	Code	Sub basin	County	Q64	Q16	Q4	Sec	Tws	Range	X	Y	Map	Distance	Well Depth	Depth Water	Water Column
C 04688 POD1		CUB	ED	NW	SW	NW	35	22S	28E	587988.9	3579827.7		48	84	64	20
C 04417 POD1		CUB	ED	SE	SW	SW	36	22S	28E	589735.5	3578874.3		1942	55		
C 04609 POD1		CUB	ED	NE	NW	NW	01	23S	28E	589816.4	3578589.2		2161	51		
C 04588 POD1		CUB	ED	NE	NE	NE	04	23S	28E	586043.1	3578720.5		2273	50		
C 04677 POD1		CUB	ED	NE	NE	NE	04	23S	28E	586059.1	3578623.6		2308	50	47	3
C 04524 POD1		CUB	ED	NW	NW	NE	01	23S	28E	590451.9	3578629.4		2691	55		
C 00512 CLW198323	O	CUB	ED	SE	NW	NW	11	23S	28E	588167.0	3576806.0 *		3011	100		
C 00512 S		CUB	ED	SE	NW	NW	11	23S	28E	588167.0	3576806.0 *		3011	100		
C 00512		CUB	ED	SE	NW	NW	11	23S	28E	588188.1	3576775.2		3043	175	15	160
C 00512 EXPL	O	CUB	ED			NW	11	23S	28E	588272.0	3576703.0 *		3120	200	16	184
C 04415 POD5		CUB	ED	SE	NW	SE	04	23S	28E	585651.8	3577605.1		3250	10		
C 04415 POD6		CUB	ED	SE	NW	SE	04	23S	28E	585651.8	3577605.1		3250	10		
C 04415 POD1		CUB	ED	SE	NW	SE	04	23S	28E	585657.1	3577591.6		3256	25	20	5
C 04415 POD8		CUB	ED	SE	NW	SE	04	23S	28E	585656.4	3577583.0		3262	27	23	4
C 04415 POD2		CUB	ED	SE	NW	SE	04	23S	28E	585653.1	3577570.6		3273	12		
C 04216 POD2		CUB	ED	NW	SE	NW	11	23S	28E	588464.6	3576555.9		3287	20	10	10
C 04415 POD4		CUB	ED	SW	NW	SE	04	23S	28E	585628.2	3577575.0		3288	11		
C 04216 POD3		CUB	ED	NW	SE	NW	11	23S	28E	588501.2	3576556.2		3291	23	13	10
C 04415 POD3		CUB	ED	SE	NW	SE	04	23S	28E	585644.9	3577552.1		3292	11		
C 04216 POD1		CUB	ED	NE	SE	NW	11	23S	28E	588488.3	3576534.5		3311	20	10	10
C 00109		CUB	ED	NW	SW	SW	04	23S	27E	588485.8	3576531.4		3314	168	120	48
C 04415 POD7		CUB	ED	SW	NW	SE	04	23S	28E	585627.9	3577518.4		3327	55	38	17
C 04216 POD4		CUB	ED	NE	SE	NW	11	23S	28E	588499.0	3576513.1		3334	20	10	10
C 04539 POD1		CUB	ED	NE	SE	NE	01	23S	28E	591034.4	3578223.2		3394	55		
C 00608		C	ED	SW	SW	NW	11	23S	28E	587970.0	3576401.0 *		3414	200		

Average Depth to Water: **32 feet**

Minimum Depth: **10 feet**

Maximum Depth: **120 feet**

Record Count: 25

UTM Filters (in meters):
Easting: 588036
Northing: 3579815
Radius: 3500

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

Point of Diversion Summary

quarters are 1=NW 2=NE 3=SW 4=SE
quarters are smallest to largest

NAD83 UTM in meters

Well Tag	POD Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
NA	C 04688 POD1	NW	SW	NW	35	22S	28E	587988.9	3579827.7	🌎

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

Driller License:	1249	**Driller Company:**	ATKINS ENGINEERING ASSOC. INC.		
Driller Name:	JACKIE ATKINS				
Drill Start Date:	2022-12-27	**Drill Finish Date:**	2022-12-27	**Plug Date:**	2023-01-10
Log File Date:	2023-01-17	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	84	**Depth Water:**	64

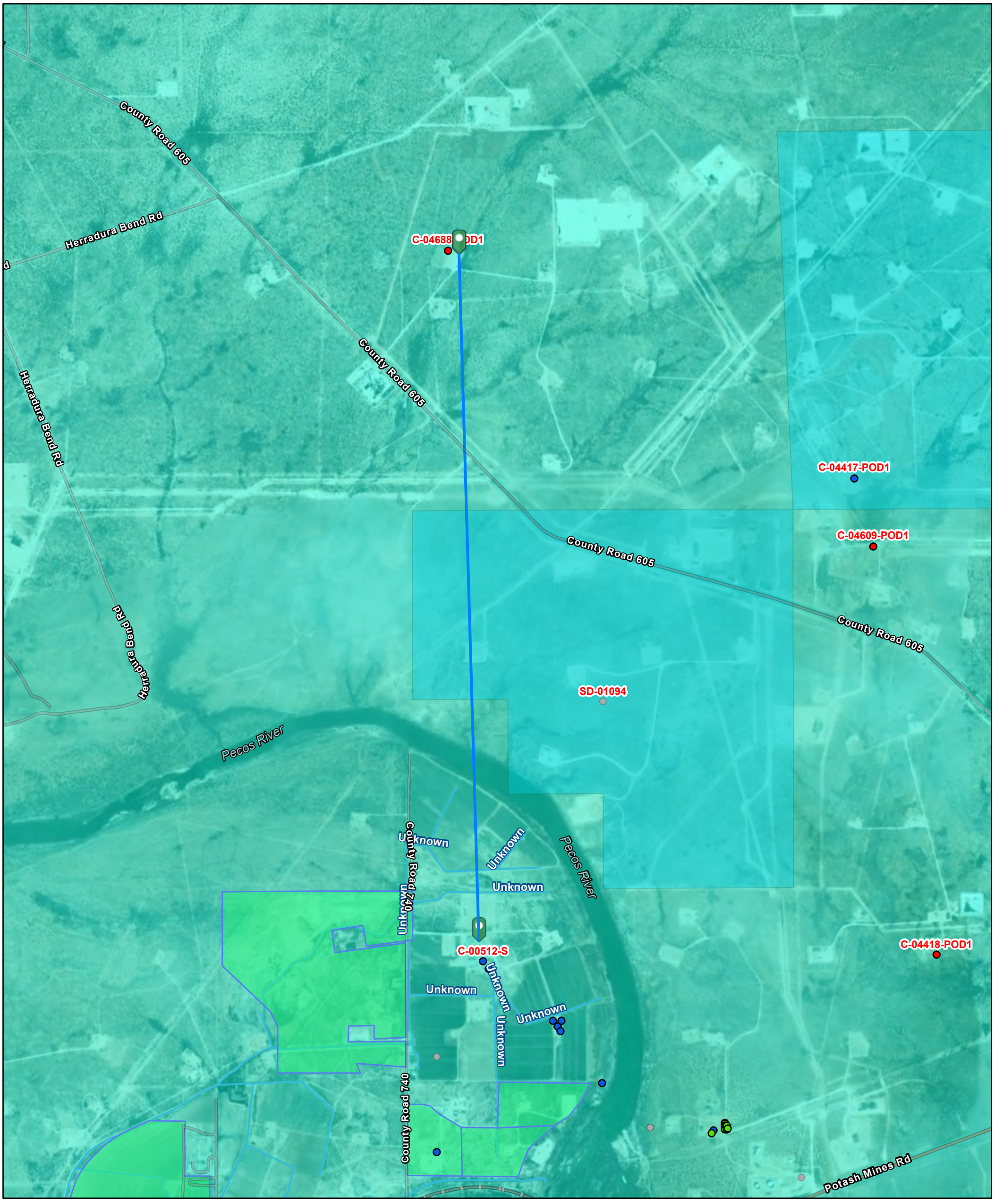
Water Bearing Stratifications:

Top	Bottom	Description
40	55	Sandstone/Gravel/Conglomerate
55	70	Sandstone/Gravel/Conglomerate
70	84	Sandstone/Gravel/Conglomerate

Casing Perforations:

Top	Bottom
0	84

05 - Union 35 Federal #001 OSE POD Location Map C 00512 9607 ft



6/2/2025, 12:30:10 PM

Override 1

GIS WATERS PODs

Active

Pending

Plugged

OSE District Boundary

Water Right Regulations

Negative Easement Area

Artesian Plan Area

New Mexico State Trust Lands

Both Estates

Conveyances

Ditch

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Maxar

Online web user

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

Water Right Summary

get image list

WR File Number:	C 04688	**Subbasin:**	CUB	**Cross Reference:**
Primary Purpose:	MON MONITORING WELL			
Primary Status:	PMT Permit			
Total Acres:		**Subfile:**		**Header:**
Total Diversion:	0.000	**Cause/Case:**		
Owner:	MARATHON OIL PERMAIN LLC	**Owner Class:**	Owner	
Contact:	MELODIE SANJARI			

Documents on File

(acre-fee

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres	Diversion
get images	739238	EXPL	2022-12-19	PMT	LOG	C 04688 POD1	T	0.000	0.000

Current Points of Diversion

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
C 04688 POD1	NA	Shallow	NW	SW	NW	35	22S	28E	587988.9	3579827.7		

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

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

6/2/25 10:29 AM MST **Water Rights Summary**

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	n/a	C-4688

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Marathon Oil Permian LLC	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
4111 S. Tidwell Rd.	Carlsbad	NM	88220

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	21	6.88	N
	LONGITUDE	104	3	53.60	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

NW SW NW Sec. 35 T22S R28E, 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)
12/27/2022	12/27/2022	Soil Boring	±84	±64

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

STATIC WATER LEVEL IN COMPLETED WELL (FT): 50.0

DATE STATIC MEASURED: 1/10/2023

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	84	Soil Boring	--	--	--	--	--

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

OSE DIT JAN 17 2023 am 9:34

FOR OSE INTERNAL USE

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

FILE NO. C-4688-POD 1	POD NO. 1	TRN NO. 739238	
LOCATION Mon 22.28.35.131		WELL TAG ID NO. N/A	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	20	20	Caliche, consolidated , dry, white/tan	Y ✓ N	
20	30	10	Sand, fine-grained, poorly graded, dry, tan	Y ✓ N	
30	40	10	Sand, fine-grained, poorly graded, dry, reddish brown	Y ✓ N	
40	55	15	Clay, Stiff, dry, Reddish Brown	✓ Y N	
55	70	15	Sand, fine-grained, poorly graded, with clay, moist	✓ Y N	
70	84	14	Clay, lean, High Plasticity, with fine-grained sand, Reddish Brown, saturated	✓ 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: Pulled well material and plugged using Portland Type I/II neat cement using tremie pipe from total depth to surface.

OSE DIT JAN 17 2023 AM 9:34

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 — 1/16/2023

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

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

FILE NO. C-4688-POD 1	POD NO. 1	TRN NO. 739238	
LOCATION Mon 22.28.35.131		WELL TAG ID NO. N/A	PAGE 2 OF 2

C-4688-POD-1_WR-20 Well Record and Log-packet-forsign

Final Audit Report 2023-01-16

Created:	2023-01-16
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAA7hkcmx5TwP3bTIXvJtr2DE0TPdHsDCyk

"C-4688-POD-1_WR-20 Well Record and Log-packet-forsign" History

Document created by Lucas Middleton (lucas@atkinseng.com)
2023-01-16 - 6:13:52 PM GMT- IP address: 64.17.82.146

Document emailed to Jack Atkins (jack@atkinseng.com) for signature
2023-01-16 - 6:14:14 PM GMT

Email viewed by Jack Atkins (jack@atkinseng.com)
2023-01-16 - 7:06:49 PM GMT- IP address: 64.90.153.232

Document e-signed by Jack Atkins (jack@atkinseng.com)
Signature Date: 2023-01-16 - 7:08:41 PM GMT - Time Source: server- IP address: 64.90.153.232

Agreement completed.
2023-01-16 - 7:08:41 PM GMT

U.S. Fish and Wildlife Service
National Wetlands Inventory

2-Union 35 Federal #001 Intermittent 1,688 ft

June 2, 2025

Wetlands

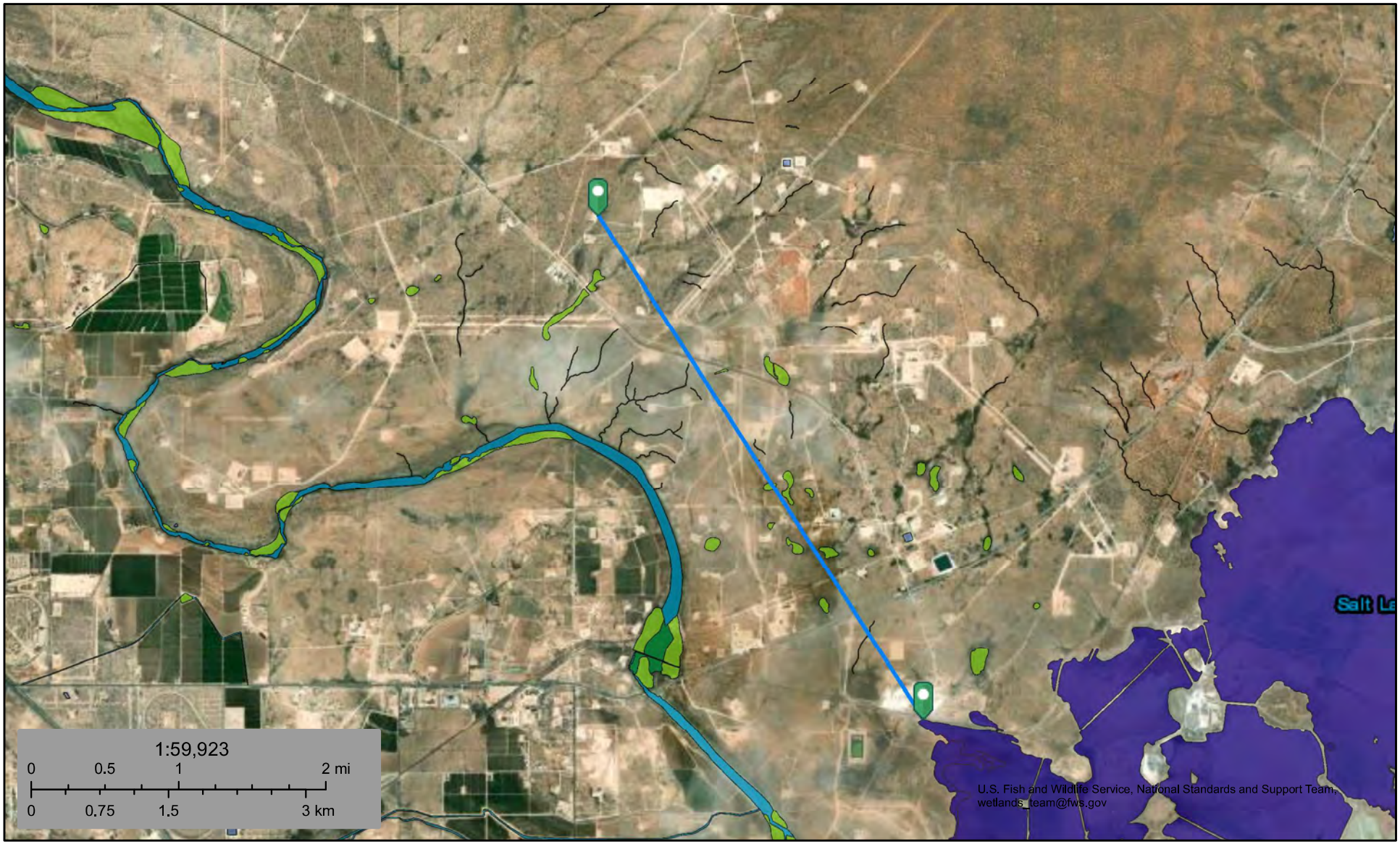
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

3- Union 35 Federal #001 Lake 18,109 ft



June 2, 2025

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

Plate - 4

Nearest Residence

15,578 feet away (2.95 miles)

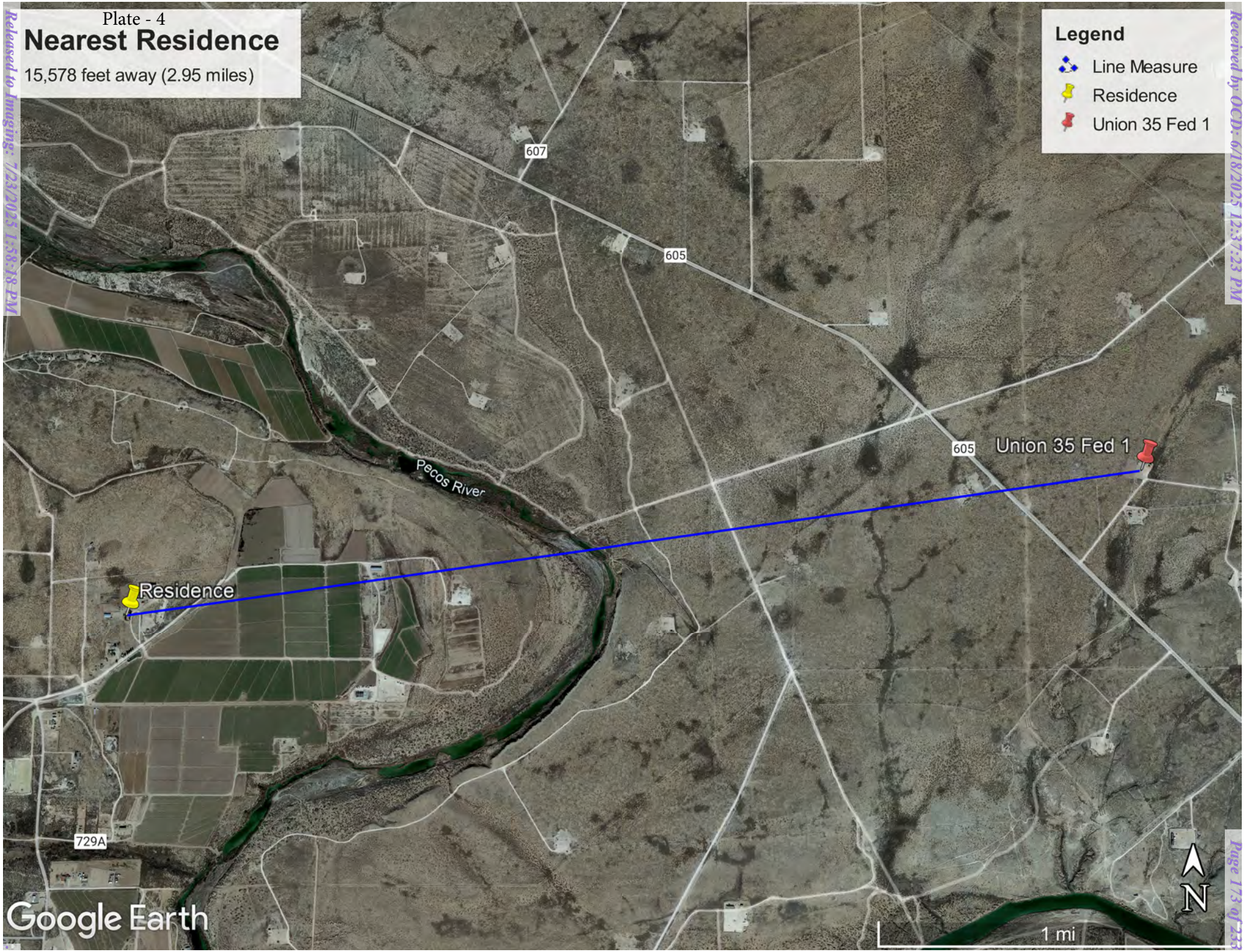


Plate - 5

Point of Diversion with Meter Attached

(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) (meters)

POD Number	Code	Sub basin	County	Source	Q64	Q16	Q4	Sec	Tws	Range	X	Y	Distance	Start
C 00512		CUB	ED	Shallow	SE	NW	NW	11	23S	28E	588188.1	3576775.2	3043	1975-
SP 01942		CUB	ED			NW	SE	11	23S	28E	588886.0	3576107.0 *	3804	
C 00212		CUB	ED	Shallow	SW	SW	SW	32	22S	28E	583127.0	3578762.0 *	5020	1957-
C 00289		CUB	ED	Shallow	NW	NW	NW	05	23S	28E	583128.0	3578563.0 *	5065	1952-
C 00501 AS2		CUB	ED	Shallow				15	23S	28E	587074.0	3574653.0 *	5250	
C 00072		CUB	ED	Shallow	SW	SW	NW	15	23S	28E	586364.0	3574760.0 *	5324	

Record Count: 6

UTM Filters (in meters):
Easting: 588036
Northing: 3579815
Radius: 5500

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

Water Right Summary

get image list

WR File Number:	C 00512	**Subbasin:**	CUB	**Cross Reference:**	
Primary Purpose:	IRR IRRIGATION				
Primary Status:	PMT Permit				
Total Acres:	107.600	**Subfile:**	23 28 11 A	**Header:**	
Total Diversion:	322.800	**Cause/Case:**			
Owner:	ANTONIO C. & GLORIA G. ONSUREZ	**Owner Class:**	Owner		

Documents on File

(acre-

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres	Diversion
	197376	72121	1991-03-05	EXP	EXP	C 00512	T		3.000
	198374	CPPU	1983-02-15	PMT	APR	C 00512 (T)	T	0.000	14.700
	198374	CPPU	1983-02-15	PMT	APR	C 00512 (T)	F	7.000	21.000
	198366	CPPU	1979-02-20	PMT	APR	C 00512 (T)	T	0.000	6.300
	198366	CPPU	1979-02-20	PMT	APR	C 00512 (T)	F	3.000	9.000
	198332	72121	1978-12-29	PMT	APR	C 00512 (1)	T		3.000
	198328	SUPPL	1976-07-16	PMT	PCW	C 00512 S	T	0.000	0.000
	198323	CLW	1974-11-11	PMT	PCW	C 00512	T	107.600	322.800
	198323	CLW	1974-11-11	PMT	PCW	C 00512	F	0.000	0.000
	198319	72121	1971-06-10	PMT	LOG	C 00512 EXPL	T		0.000
	198316	REPAR	1969-07-01	PMT	APR	C 00512	T	0.000	0.000
	198315	COWNF	1968-03-18	CHG	PRC	C 00512	T	0.000	0.000
	198472	COMB	1956-11-16	DEN	DEN	C 00504 & C 512 ENLG COMB	F	0.000	0.000
	198290	DCL	1954-07-06	DCL	PRC	C 00512	T	107.580	322.740

Current Points of Diversion

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
C 00512		Shallow	SE	NW	NW	11	23S	28E	588188.1	3576775.2		
C 00512 S		Shallow	SE	NW	NW	11	23S	28E	588167.0	3576806.0 *		

POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
SP 00006			SE	NW	SW	12	21S	26E	570265.2	3595078.5		AVALON DAM GATE TO CID M CA

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

Place of Use

Q256	Q64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
							0.000	14.700		HWY		PMT	NO PLACE OF USE GIVEN. CONSTRUCTION OF NMSHD PROJECT SR-1206 (10)
							0.000	6.300		HWY		PMT	NO PLACE OF USE GIVEN. CONSTRUCTION OF NMSHD PROJECT SP-S-1206(200)
	NW	NW	NW	11	23S	28E	3.700	11.100		IRR		DCL	
	NW	NE	NW	11	23S	28E	8.770	26.310		IRR		DCL	
	NW	SW	NW	11	23S	28E	9.820	29.460		IRR		DCL	
	NW	SE	NW	11	23S	28E	3.200	9.600		IRR		DCL	
	NE	NW	NW	11	23S	28E	4.460	13.380		IRR		DCL	
	NE	NE	NW	11	23S	28E	4.550	13.650		IRR		DCL	
	NE	SW	NW	11	23S	28E	9.900	29.700		IRR		DCL	
	NE	SE	NW	11	23S	28E	7.890	23.670		IRR		DCL	
	SW	NW	NW	11	23S	28E	9.860	29.580		IRR		DCL	
	SW	NE	NW	11	23S	28E	0.760	2.280		IRR		DCL	
	SW	SW	NW	11	23S	28E	8.800	26.400		IRR		DCL	
	SW	SE	NW	11	23S	28E	8.170	24.510		IRR		DCL	
	SE	NW	NW	11	23S	28E	5.100	15.300		IRR		DCL	
	SE	NE	NW	11	23S	28E	6.100	18.300		IRR		DCL	
	SE	SW	NW	11	23S	28E	10.000	30.000		IRR		DCL	
	SE	SE	NW	11	23S	28E	6.500	19.500		IRR		DCL	

Source

Acres	Diversion	CU	Use	Priority	Source	Description
107.580	322.740		IRR		GW	

6/2/25 12:00 PM MST **Water Rights Summary**

Plate - 5

Point of Diversion Summary

quarters are 1=NW 2=NE 3=SW 4=SE
quarters are smallest to largest

NAD83 UTM in meters

Well Tag	POD Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
	C 00512	SE	NW	NW	11	23S	28E	588188.1	3576775.2	

* UTM location was derived from PLSS - see Help

Driller License:	24	**Driller Company:**	BRININSTOOL, M.D.		
Driller Name:	BRININSTOOL, M.D.				
Drill Start Date:	1975-05-04	**Drill Finish Date:**	1975-05-20	**Plug Date:**	
Log File Date:	1976-05-11	**PCW Rcv Date:**	1976-10-22	**Source:**	Shallow
Pump Type:	TURBIN	**Pipe Discharge Size:**	4"	**Estimated Yield:**	300
Casing Size:	16.00	**Depth Well:**	175	**Depth Water:**	15

Water Bearing Stratifications:

Top	Bottom	Description
15	28	Shallow Alluvium/Basin Fill

Casing Perforations:

Top	Bottom
15	90

Meter Information

Meter Number:	5520	**Meter Make:**	MCCROMETER
Meter Serial Number:	02-4-1040	**Meter Multiplier:**	100.0000
Number of Dials:	6	**Meter Type:**	Diversion
Unit of Measure:	Gallons	**Reading Frequency:**	Monthly (No Reading Expected)

Meter Readings (in Acre-Feet)

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
2002-03-27	2002	0.000	A	tw		0.000	

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
2002-05-07	2002	391.000	A	tw		0.120	
2002-06-12	2002	1914.000	A	tw		0.467	
2002-09-03	2002	3920.000	A	tw		0.616	
2003-01-13	2002	4253.000	A	tw		0.102	
2003-04-02	2003	4451.000	A	tw		0.061	
2003-06-04	2003	4729.000	A	tw		0.085	
2003-08-02	2003	4932.000	A	tw		0.062	
2003-10-27	2003	4932.000	A	tw		0.000	
2004-01-07	2003	4932.000	A	tw		0.000	
2004-04-27	2004	4932.000	A	tw		0.000	
2004-07-15	2004	5085.000	A	tw		0.047	
2004-10-20	2004	649.000	R	tw	Meter Rollover	305.527	
2005-01-03	2004	649.000	A	tw		0.000	
2005-03-01	2005	649.000	A	tw		0.000	
2005-07-06	2005	675.000	A	tw		0.008	
2005-10-19	2005	675.000	A	tw		0.000	
2006-01-05	2005	675.000	A	tw		0.000	
2006-04-06	2006	676.000	A	tw		0.000	
2006-07-06	2006	676.000	A	tw		0.000	
2007-01-09	2007	676.000	A	tw		0.000	
2008-01-03	2007	55046.000	A	tw		16.686	
2008-04-24	2008	85512.000	A	tw		9.350	
2008-07-17	2008	98411.000	A	tw		3.959	
2008-10-02	2008	103913.000	A	tw		1.689	
2009-01-15	2008	104404.000	A	tw		0.151	
2009-04-22	2009	123664.000	A	tw		5.911	
2009-08-04	2009	142056.000	A	tw		5.644	
2010-01-06	2009	160768.000	A	tw		5.743	
2010-06-02	2010	160899.000	A	tw		0.040	

Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
2011-01-12	2010	160899.000	A	tw		0.000	
2012-01-23	2011	170841.000	A	tw		3.051	
2012-03-12	2012	170841.000	A	tw		0.000	
2012-07-24	2012	171317.000	A	tw		0.146	
2013-02-13	2012	171504.000	A	tw		0.057	
2013-11-05	2013	172273.000	A	tw		0.236	
2014-07-22	2014	172369.000	A	tw		0.029	
2016-02-24	2015	172706.000	A	tw		0.103	
2016-08-11	2016	178853.000	A	tw		1.886	
2016-12-27	2016	172959.000	C	tw	Meter Reading Correction	-1.809	
2017-07-18	2017	173150.000	A	tw		0.059	
2018-01-08	2017	173271.000	A	tw		0.037	

YTD Meter Amounts:

Year	Amount
2002	1.305
2003	0.208
2004	305.574
2005	0.008
2006	0.000
2007	16.686
2008	15.149
2009	17.298
2010	0.040
2011	3.051
2012	0.203
2013	0.236
2014	0.029

Year	Amount
2015	0.103
2016	0.077
2017	0.096

Meter Information

Meter Number:	15518	**Meter Make:**	MASTER
Meter Serial Number:	2680127	**Meter Multiplier:**	100.0000
Number of Dials:	6	**Meter Type:**	Diversion
Unit of Measure:	Gallons	**Reading Frequency:**	Monthly (No Reading Expected)

Meter Readings (in Acre-Feet)

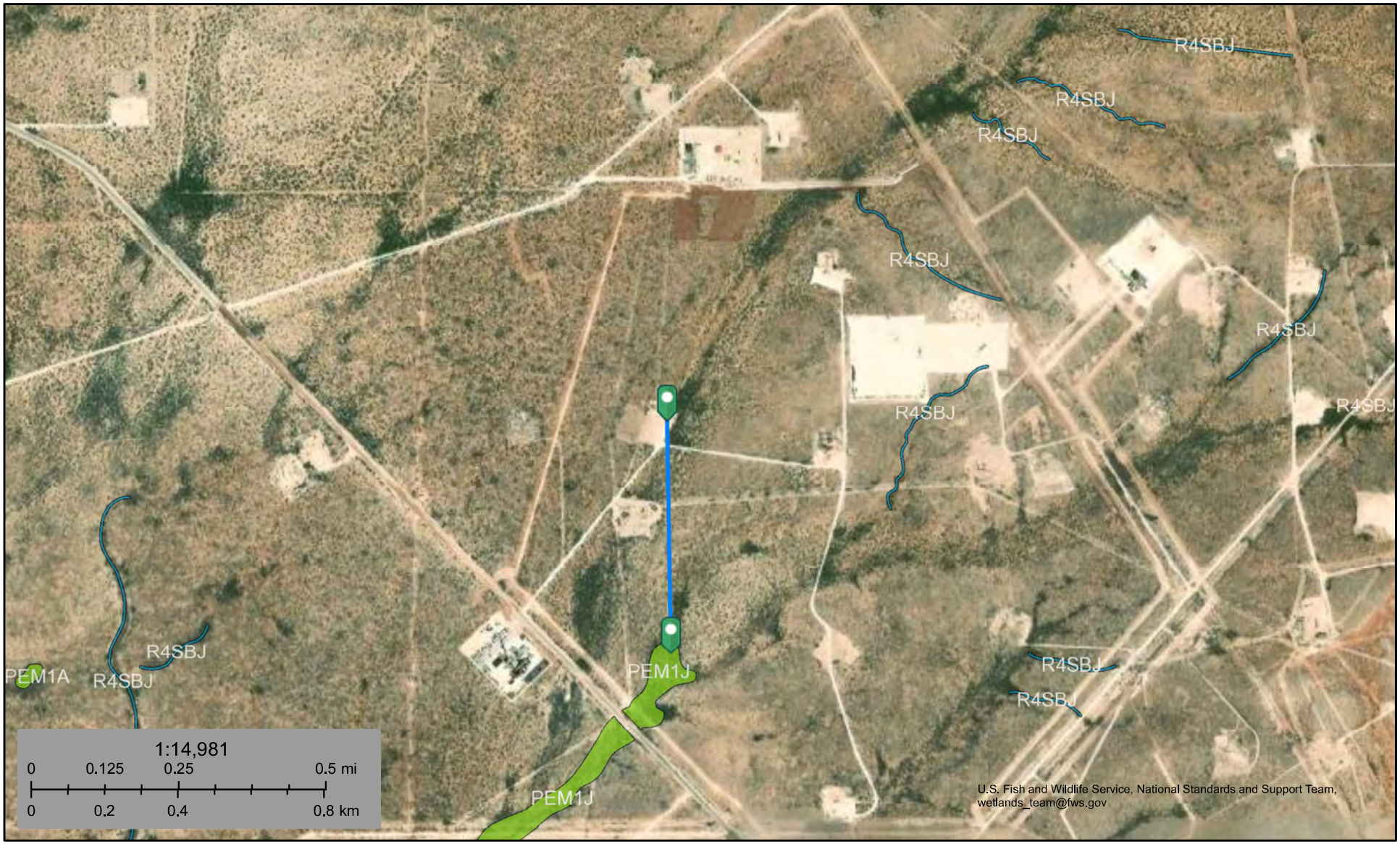
Read Date	Year	Mtr Reading	Flag	Rdr	Comment	Mtr Amount	Online
2012-02-02	2012	17.000	A	RPT		0.000	
2012-04-03	2012	2594.000	A	RPT		0.791	

YTD Meter Amounts:

Year	Amount
2012	0.791

U.S. Fish and Wildlife Service
National Wetlands Inventory

7- Union 35 Federal #001 Wetland 1,702 ft



June 2, 2025

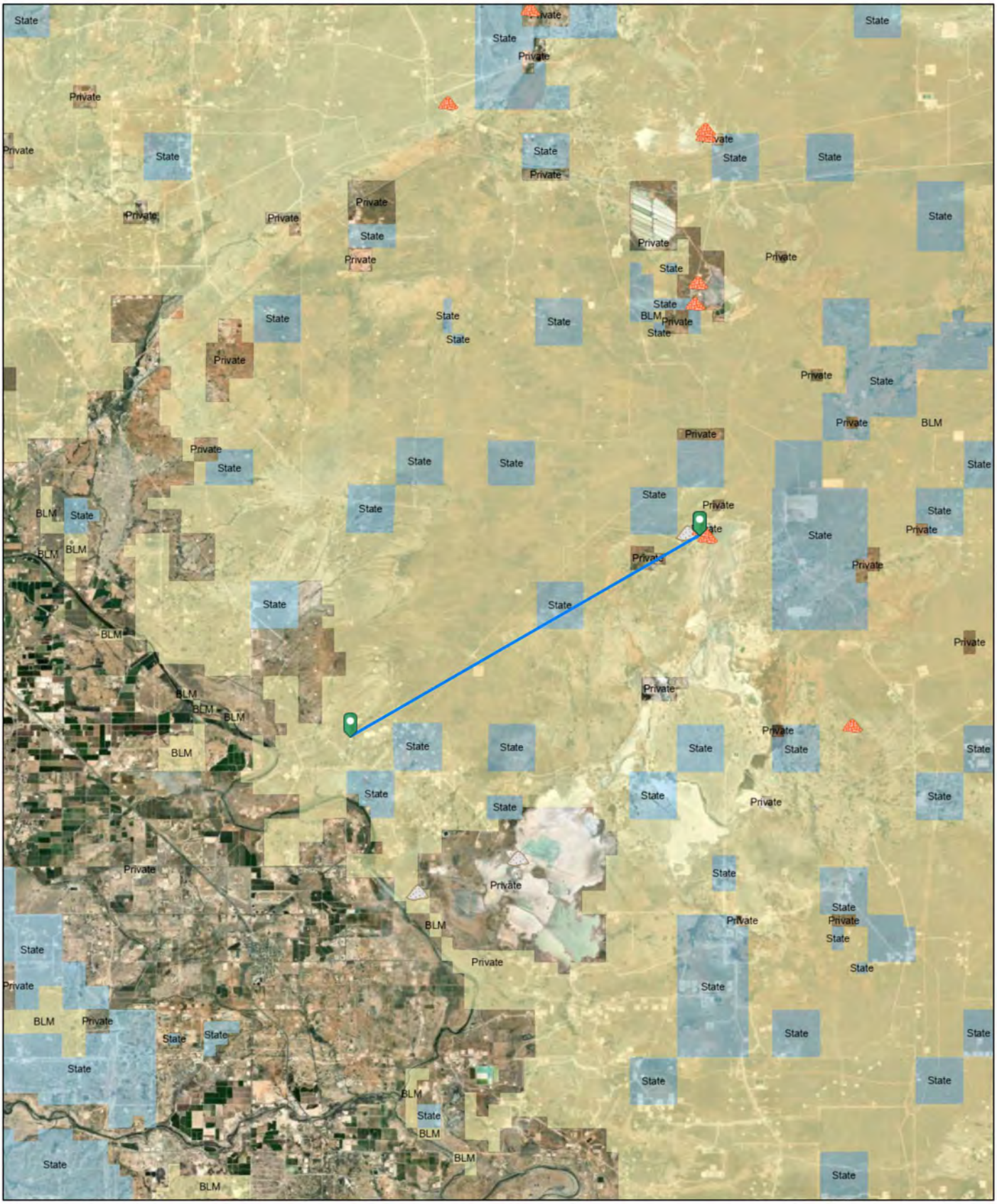
Wetlands

- 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

08-Union 33 Federal #001 Nearest Subsurface Mine 45104ft



6/2/2025, 1:15:26 PM

Registered Mines

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

Land Ownership

- P
- S
- BLM

1:144,448

0 1.25 2.5 5 mi

0 2.25 4.5 9 km

U.S. BLM, Earthstar Geographics

EMNRD MMD GIS Coordinator

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

09 - Union 35 Federal #001

Unstable Area (Karst) Distance
22,252 ft/4.1 miles East of Site

Legend

- Castile Formation
- Critical/Highest Potential for Caves
- Feature 1
- Formation
- High
- Union 35 Federal #001
- Yellow Line- Distance

32.351796,-104.064387

Google Earth

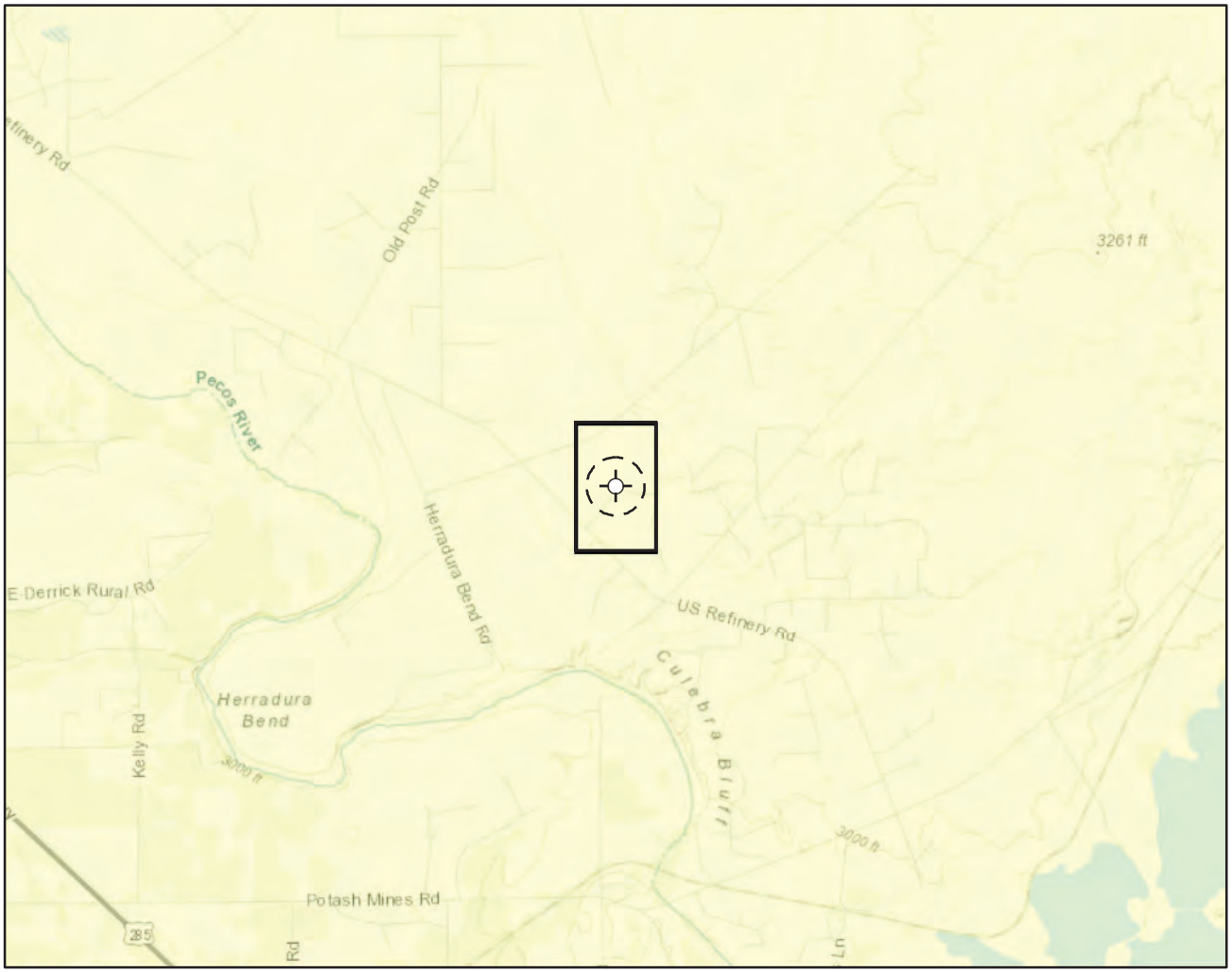
Image © 2025 Airbus

N

4 mi

Pecos River

ghorn Flats Hotel & RV Park (Carlsbad Area)



Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

Karst Potential

- Critical
- High
- Medium
- Low

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

VERTEX

Map Center:
Lat/Long: 32.351574, -104.064751

NAD 1983 UTM Zone 13N
Date: Jul 14/23

N

Karst Potential Schematic
Union 35 Fed 1

FIGURE: 9

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, 2020; 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.

10 - Union 35 Federal #001

FEMA Flood Zone Distance
6259 ft/1.19 miles South of Site

Legend

- Union 35 Federal #001
- Yellow Line-Mesured Distance

32.351796,-104.064387

N

1 mi

Google Earth

Image © 2025 Airbus

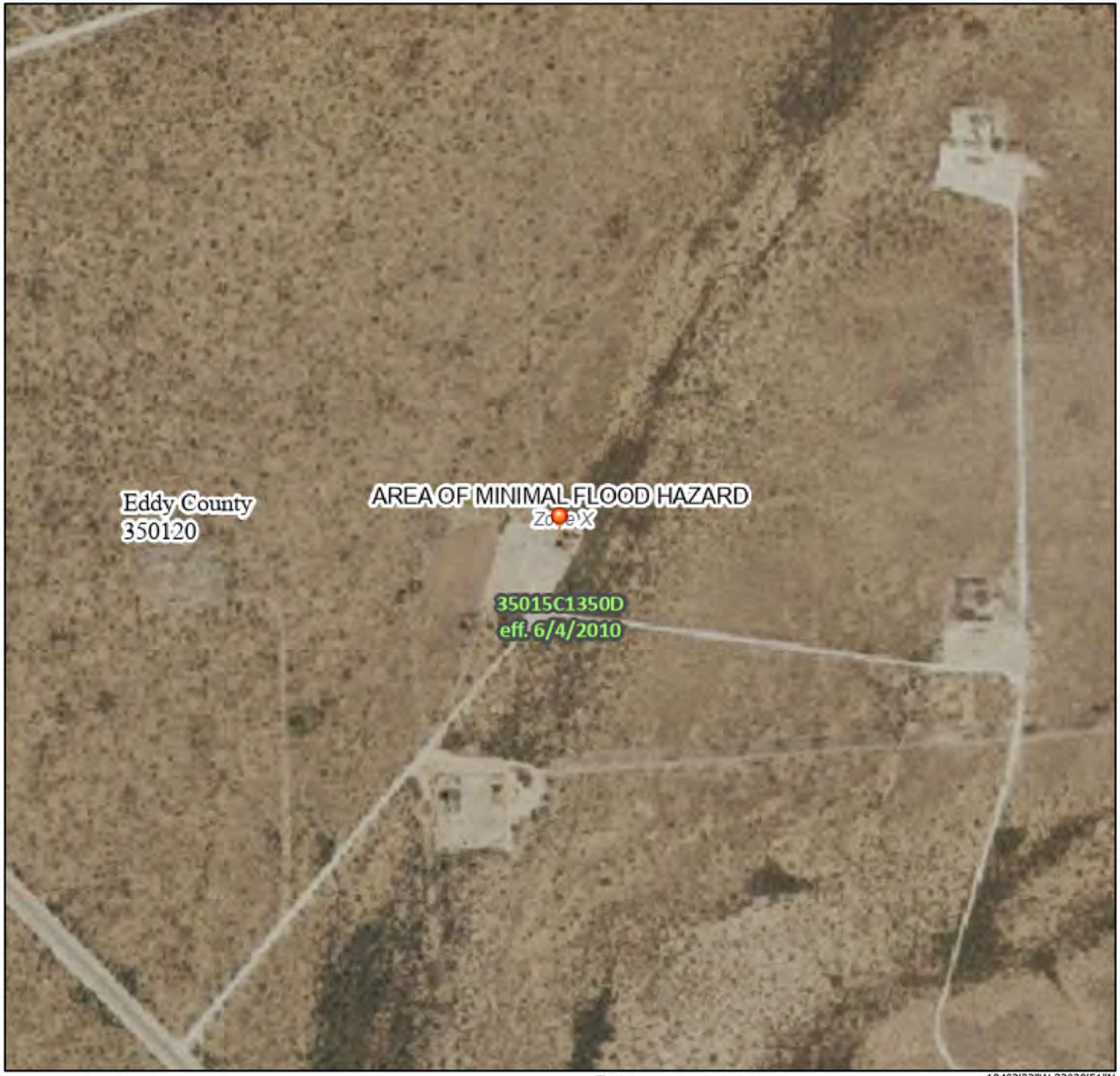
Pecos River

National Flood Hazard Layer FIRMette

Plate - 10

FEMA

104°4'11"W 32°21'22"N



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

1:6,000

104°3'33"W 32°20'51"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 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - 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 6/2/2025 at 8:58 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Eddy Area, New Mexico

11 - Soil Type

June 4, 2025

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 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 20, Sep 3, 2024

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SM	Simona-Bippus complex, 0 to 5 percent slopes	0.7	34.7%
SN	Simona and Wink fine sandy loams, 0 to 3 percent slopes, eroded	1.3	65.3%
Totals for Area of Interest		**1.9**	**100.0%**

Map Unit Descriptions

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

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

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

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

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

SM—Simona-Bippus complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1w5x
Elevation: 1,800 to 5,000 feet
Mean annual precipitation: 8 to 24 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 55 percent
Bippus and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

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

Description of Bippus

Setting

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

Typical profile

H1 - 0 to 37 inches: silty clay loam
H2 - 37 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 5 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): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 8 percent
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Bippus

Percent of map unit: 7 percent
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: No

SN—Simona and Wink fine sandy loams, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w5y
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 45 percent
Wink and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R070BD002NM - Shallow Sandy

Hydric soil rating: No

Description of Wink

Setting

Landform: Swales, depressions
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 38 inches: fine sandy loam
H3 - 38 to 60 inches: stratified gravelly variable

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: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R070BD004NM - Sandy
Hydric soil rating: No

Minor Components

Dune land

Percent of map unit: 15 percent
Hydric soil rating: No

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USDA Natural Resources Conservation Service

Ecological site R070BD002NM
Shallow Sandy
12 - Ecological Classification

Accessed: 06/04/2025

General information

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

Figure 1. Mapped extent

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

Associated sites

R070BD004NM	**Sandy** Sandy sites often occur in association or in a complex with Shallow Sandy Sites.

Similar sites

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

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is from 207 to 220 days. The last killing frost is in late March or early April, and the first killing frost is in late October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of the site. The vegetation of this site can take advantage of the moisture and the time it falls. Because of the soil profile, little moisture can be stored in the soil for any length of time. Moisture is readily available to the plants from the time it falls. Strong winds from the southwest blow from January through June which rapidly dries out the soil profile during a critical period for plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

Characteristic soils are:
Simona
Jerag

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Loamy fine sand (3) Gravelly fine sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained to moderately well drained
Permeability class	Moderately slow to moderate
Soil depth	7–24 in
Surface fragment cover <=3"	5–25%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	5–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm

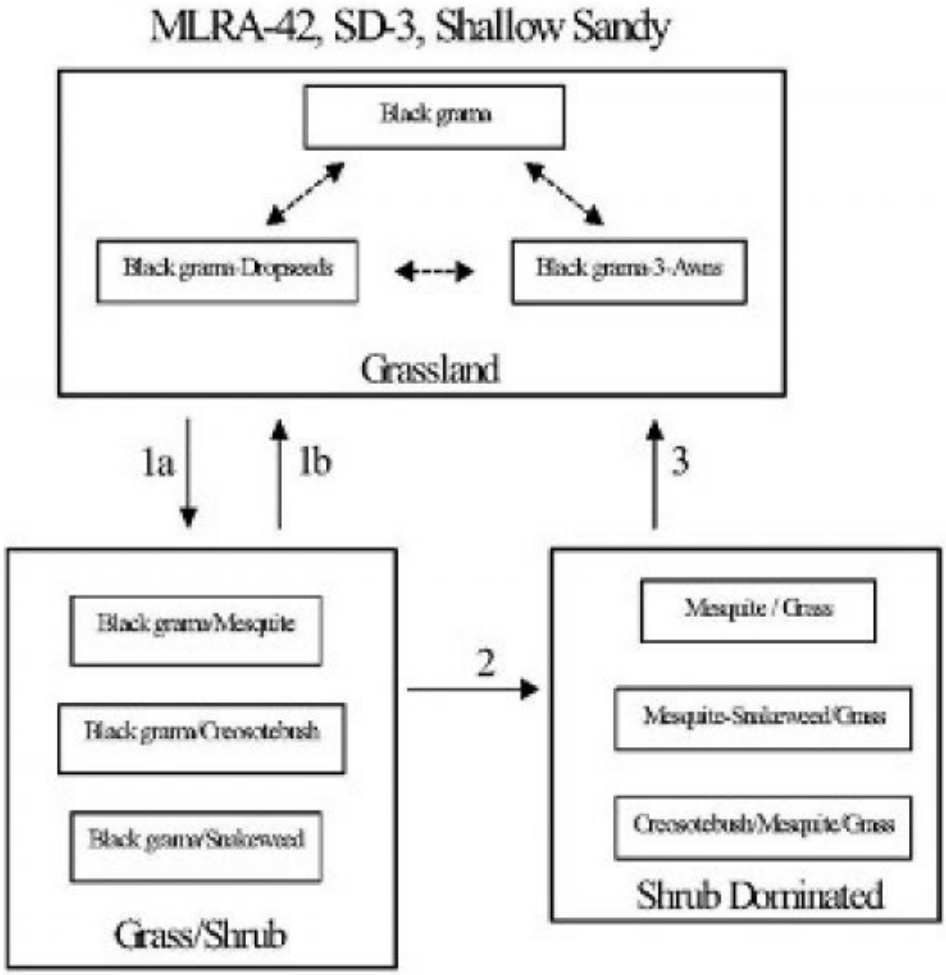
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8
Subsurface fragment volume <=3" (Depth not specified)	5–25%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

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

State and transition model

Plant Communities and Transitional Pathways (diagram)



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

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

3. Brush control, range seeding, prescribed grazing.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: This site responds well to management and is resistant to state change, due to the shallow depth to petrocalcic horizon and sandy surface textures. The sandy surface textures allow rapid water infiltration and the petrocalcic horizon helps to keep water

perched and available to shallow rooted grasses. Black grama is the dominant species in the historic plant community, averaging 50 to 60 percent of the total production for this site. Bush muhly, blue grama, and dropseeds are present as sub-dominants. Typically, yucca, javalinabush, range ratany, prickly pear, and mesquite are sparsely dotted across the landscape. Leatherweed croton, cutleaf happlopappus, wooly groundsel, and threadleaf groundsel are common forbs. Continuous heavy grazing or extended periods of drought will cause a loss of grass cover characterized by a decrease in black grama, bush muhly, blue and sideoats grama, plains bristlegrass, and Arizona cottontop. Dropseeds and or threeawns may increase and become sub-dominant to black grama. Continued loss of grass cover in conjunction with dispersal of shrub seeds and fire suppression is believed to cause the transition to a state with increased amounts of shrubs (Grass/Shrub state). Diagnosis: Black grama is the dominant grass species. Grass cover uniformly distributed. Shrubs are a minor component averaging only two to five percent canopy cover. Litter cover is high (40-50 percent of area), and litter movement is limited to smaller size class litter and short distances (<. 5m). Other grasses that could appear on this site would include: six-weeks grama, fluffgrass, false-buffalograss, hairy grama, little bluestem, bristle panicum, cane bluestem, Indian ricegrass, tridens spp., and red lovegrass. Other woody plants include: pricklypear, cholla, fourwing saltbush, catclaw mimosa, winterfat, American tarbush and mesquite. Other forbs include: globemallow, verbena, desert holly, senna, plains blackfoot, trailing fleabane, fiddleneck, deerstongue, wooly Indianwheat, and locoweed.

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

Bedrock	0%
Water	0%
Bare ground	15-25%

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

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

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

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

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

Additional community tables

Table 7. Community 1.1 plant community composition

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

	blue grama	BOGR2	*Bouteloua gracilis*	41–83	–
4	**Warm Season**			25–41	
	sideoats grama	BOCU	*Bouteloua curtipendula*	25–41	–
5	**Warm Season**			41–83	
	spike dropseed	SPCO4	*Sporobolus contractus*	41–83	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	41–83	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	41–83	–
6	**Warm Season**			17–41	
	threeawn	ARIST	*Aristida*	17–41	–
7	**Warm Season**			41–83	
	Arizona cottontop	DICA8	*Digitaria californica*	41–83	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	41–83	–
8	**Warm Season**			41–83	
	mat sandbur	CELO3	*Cenchrus longispinus*	41–83	–
	hooded windmill grass	CHCU2	*Chloris cucullata*	41–83	–
9	**Other Perennial Grasses**			25–41	
	Grass, perennial	2GP	*Grass, perennial*	25–41	–
Shrub/Vine					
10	**Shrub**			8–25	
	javelina bush	COER5	*Condalia ericoides*	8–25	–
11	**Shrub**			8–25	
	yucca	YUCCA	*Yucca*	8–25	–
12	**Shrub**			8–25	
	jointfir	EPHED	*Ephedra*	8–25	–
	littleleaf ratany	KRER	*Krameria erecta*	8–25	–
13	**Shrub**			8–25	
	featherplume	DAFO	*Dalea formosa*	8–25	–
14	**Shrub**			8–25	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	8–25	–
15	**Other Shrubs**			25–41	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	25–41	–
Forb					
16	**Forb**			17–41	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	17–41	–

	Goodding's tansyaster	MAPIG2	*Machaeranthera pinnatifida ssp. gooddingii var. gooddingii*	17–41	–
17	**Forb**			17–41	
	woolly groundsel	PACA15	*Packera cana*	17–41	–
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	17–41	–
18	**Forb**			8–25	
	whitest evening primrose	OEAL	*Oenothera albicaulis*	8–25	–
19	**Other Forbs**			8–25	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	8–25	–

Animal community

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

Hydrological functions

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

Hydrologic Interpretations
Soil Series Hydrologic Group
Jarag D
Simona D

Recreational uses

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

Wood products

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

Other products

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

Other information

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

Inventory data references

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

Other references

Literature References:

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

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

3. Humphrey, R.R. 1974. Fire in the deserts and desert grassland of North America. In:

Kozlowski, T. T.; Ahlgren, C. E., eds. Fire and ecosystems. New York: Academic Press: 365-400.

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

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

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

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

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

Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

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

Author(s)/participant(s)	
Contact for lead author	
Date	

Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

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

   _____

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

   _____

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

   _____

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

   _____

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

   _____

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

   _____

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

   _____

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

   _____

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

   _____

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

---

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

---

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

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

---

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

---

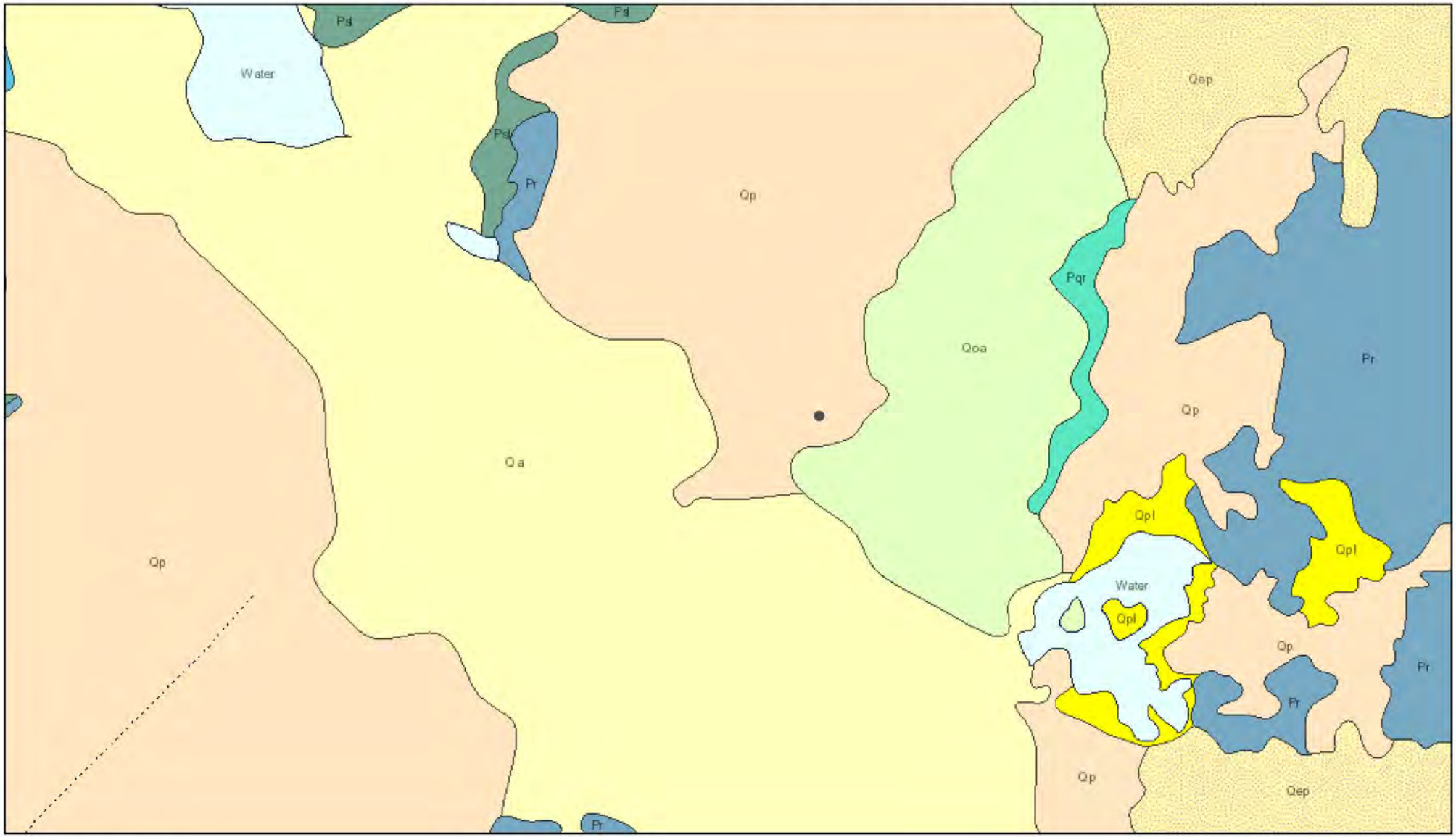
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

---

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

17. **Perennial plant reproductive capability:**

13 Union 35 Federal #001 Piedmont Alluvial Deposits



6/2/2025, 12:55:43 PM

Lithologic Units

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

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Esri, NASA, NGA, USGS, 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

ArcGIS Web AppBuilder

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

ATTACHMENT 6

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
MAR 03 2015
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

nAB1501643661LE

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production 6137	**Contact** Roy White
Address 6488 Seven Rivers Hwy Artesia, NM 88220	**Telephone No.** 575.513.1741
Facility Name Union 35 Federal #1 Battery	**Facility Type** Oil

Surface Owner BLM	**Mineral Owner** BLM	**API No.** 30-015-24689

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	35E	22S	28E	1780	FNL	660	FWL	Eddy

Latitude: **Longitude:**

NATURE OF RELEASE

Type of Release Spill Produced water	**Volume of Release** 117 BBL	**Volume Recovered** 250 BBL
Source of Release Static electricity caused the water tank to exploded and caught fire	**Date and Hour of Occurrence** 9.19.2014 at 6:15	**Date and Hour of Discovery** 9.19.2014 6:20
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** OCD at 7:45 AM BLM at 7:45 AM	
By Whom? Mike McMahan	**Date and Hour** 9.20.2014 at 7:45	
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.*
On the Union 35 Fed Tank Battery static electricity caused the produced water tank to explode and catch fire. 117 BBL of produced water spilled in containment and 117 BBL recovered of produced water along with 133 BBL of rain water and water from fire department

Describe Area Affected and Cleanup Action Taken.* Union 35 Fed Tank Battery. Delaware Basin BU. Assistant Foreman was contacted at 6:15 pm concerning a fire at the Union 35 Battery. Lease operator preceded to the location arriving at 6:30 pm. Upon arrival the produced water tank was completely burnt. The fire department from La Huerta was already on scene and were in the process of extinguishing the fire. Assistant Foreman had arrived and was in the process of shutting in the four pumping units that flow to the battery. The lease operator preceded to shut in the vessels on location. The fire department finished extinguishing the fire and left location. Two vacuum trucks were dispatched to begin the cleanup process. The trucks recovered 250bbls of produced water/rain water.

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: Jeanette Barron	OIL CONSERVATION DIVISION
Printed Name: Jeanette Barron	Approved by Environmental Specialist:
Title: Field Admin Support	Approval Date: 3/5/15 Expiration Date: N/A
E-mail Address: Jeanette.barron@dvn.com	Conditions of Approval: Attached ☐
Date: 9.29.14 Phone: 575.748.1813	**Remediation per O.C.D. Rules & Guidelines** **SUBMIT REMEDIATION PROPOSAL NO LATER THAN:** 4/6/15

2RP-2854

District I
1625 N. French Dr., Hobbs, NM 88240
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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 08 2017
RECEIVED

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

nAB1732026330

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company 6137	Contact Wesley Ryan, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-390-5436
Facility Name Union 35 Fed 1	Facility Type Oil

Surface Owner Federal	Mineral Owner Federal	API No. 30-015-24689

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	35	22S	28E	1780'	FNL	660'	FWL	Eddy

Latitude 32.35178 **Longitude** -104.06430 NAD83

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 5.2bbls	Volume Recovered 4bbls
Source of Release Tanks	Date and Hour of Occurrence October 26, 2017 @ 10:00 AM MST	Date and Hour of Discovery October 26, 2017 @ 10:00 AM MST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Shelly Tucker, BLM Mike Bratcher & Crystal Weaver, OCD	
By Whom? Wesley Ryan, Production Foreman	Date and Hour October 27, 2017 @ 6:23 AM MST	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

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

Describe Cause of Problem and Remedial Action Taken.*
The battery is on a scheduled pick up and the produced water hauler did not pick up a load of water in time. The water tank ran over and released approximately 5.2 bbls of produced water into the dirt containment around the tanks. The release stayed on the location and a vacuum truck began recovery of the released fluids.

Describe Area Affected and Cleanup Action Taken.*
Approximately 5.2bbls produced water was released into the earthen containment. A vacuum truck was dispatched and recovered approximately 4 bbls of produced water. An environmental contractor will be contacted to assist with the delineation and remediation of the well pad surface.

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: Sheila Fisher

Printed Name: Sheila Fisher

Title: Field Admin Support

E-mail Address: Sheila.Fisher@dvn.com

Date: 11/2/17 Phone: 575.748.1829

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: [signature]

Approval Date: 11/14/17 Expiration Date: NA

Conditions of Approval:
See attached

Attached ☐
2RP-4481

* Attach Additional Sheets If Necessary

11/09/17 AB

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	
District RP	2RP-5507
Facility ID	
Application ID	pAB1918455511

Release Notification

Responsible Party

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

Location of Release Source

Latitude 32.3515739 Longitude -104.0647507
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Union 35 Battery #001	Site Type Oil
Date Release Discovered 11/19/2018	API# *(if applicable)* 3001524689

Unit Letter	Section	Township	Range	County
E	35	22S	28E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 9	Volume Recovered (bbls) 7
	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: Water tanks overflowed due to an unusual increase in water production. Spill area 32'x15'x1"

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAB1918455869
District RP	2RP-5507
Facility ID	
Application ID	pAB1918455511

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: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Digitally signed by Kendra DeHoyos DN: cn=Kendra DeHoyos, o, ou, email=kendra.dehoyos@dvn.com, c=US Date: 2018.12.10 16:08:37 -07'00' Date: 12/10/2018

email: kendra.dehoyos@dvn.com Telephone: 575-748-3371

OCD Only

Received by: Amalia Bustamante Date: 7/3/2019

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Action 476211

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAB1506436616**
Incident Name	**NAB1506436616 UNION 35 FEDERAL #001 @ 30-015-24689**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Plan Received**
Incident Well	**[30-015-24689] UNION 35 FEDERAL #001**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	UNION 35 FEDERAL #001
Date Release Discovered	09/19/2014
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Fire | Tank (Any) | Produced Water | Released: 250 BBL | Recovered: 117 BBL | Lost: 133 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

Sante Fe Main Office
Phone: (505) 476-3441

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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 (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

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;** **(2) an unauthorized release of a volume that:** **(a) results in a fire or is the result of a fire.**
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: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 06/18/2025

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1000 (ft.) and ½ (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between ½ and 1 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 1 and 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	22000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	5000
GRO+DRO (EPA SW-846 Method 8015M)	2500
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	06/25/2025
On what date will (or did) the final sampling or liner inspection occur	09/01/2025
On what date will (or was) the remediation complete(d)	09/23/2025
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	6768
What is the estimated volume (in cubic yards) that will be remediated	1209
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.	

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*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: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 06/18/2025
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: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

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:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	Action Number: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	*{Unavailable.}*

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	No

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CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 476211
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. The release area will need confirmation floor/sidewall samples representing no more than 200 ft2. Collect 5-point confirmation floor samples every 200 ft2 throughout the “entire release area” and not just at delineation sample point locations that show contaminants over closure criteria standards. Please, make sure all confirmation samples are included on the site map.	7/23/2025
rhamlet	All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards from Table 1 of the OCD Spill Rule for site assessment/characterization/proven depth to water determination. All sidewall samples should be taken from the sidewall of the excavation. Please make sure that the edge of the release extent is accurately defined. Sidewall/edge samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Also, sample up against the tanks/equipment to ensure contaminants didn’t go underneath. If the removal of contaminants under tanks/equipment could cause a major facility deconstruction, a formal deferral request will need to be submitted to the OCD Permitting Portal. The work will need to be completed in 90 days after the report has been reviewed.	7/23/2025