General Information

NMOCD District:	District 1 - Hobbs	Incident IDs:	nKJ1516742526,
Landowner:	Bureau of Land Management		nRM2014559127
Client:	Devon Energy Production Company, LP	Site Location:	SDE 31 Federal CTB
Date:	June 10, 2025	Project #:	24E-01499
Client Contact:	Jim Raley	Phone #:	575.689.7597
Vertex PM:	Kent Stallings	Phone #:	346.814.1413

Objective

The objective of the Environmental Site Remediation Work Plan is to identify exceedances found during the site assessment and characterization activity and propose an appropriate remediation technique to address two open releases at the SDE 31 Federal CTB (two of which are assigned to SDE 31 Federal #004). Two releases involved produced water and/or crude oil and were caused by corrosion of a flowline (nKJ1516742526) and a tank overflow (nRM2014559127). Areas of environmental concern identified and delineated include: the tank battery and the majority of the facility pad extending west, northwest, north, northeast, and east of the tank battery. An aerial photograph of the site with characterization locations and approximate area of release impact is presented on Figure 1 (Attachment 1).

On March 9, 2023, exploratory borehole C 04746 POD 1 was advanced 0.29 miles east-southeast of the site to 55 feet below ground surface (bgs) to establish a depth-to-groundwater reference for closure criteria. Prior to drilling, an application was submitted to the New Mexico Office of the State Engineer to drill a Well with No Water Right at the proposed drill location near the release. No water was found at 105 feet bgs. Closure criteria have been selected as per New Mexico Administrative Code 19.15.29.12 and are presented below (Table 1).

Table 1. Closure Criteria for Soils Impacted by a Release

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

TDS – Total dissolved solids
DTGW – Depth to groundwater
TPH – Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)
BTEX - Benzene, toluene, ethylbenzene, and xylenes

Site Assessment/Characterization

Site characterization was begun in 2020 and completed on July 11, 2023. A total of 61 sample points were established and samples collected for field screening. Samples at the deepest vertical distance below closure criteria were submitted to the laboratory for analysis. In total, 139 samples were submitted to Hall Environmental Analysis Laboratory (Now known as Eurofins Albuquerque) 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 closure criteria are identified in the table in bold with gray background.

Remedial Activities

The boundaries of the open releases are overlapped and should be consolidated for remediation and reporting purposes.

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation. Laboratory results from the site assessment and 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 2-foot increments, whichever is most conservative. Field screening will be utilized to confirm removal of contaminated soil below the applicable closure criteria. Contaminated soils will be stored on a 30mil liner prior to disposal at an approved facility. Once excavation is complete, confirmatory samples will be collected utilizing five-point composite samples no more than 200 square feet within the excavated areas exceeding closure criteria.

Variance request

Due to the size of the release area, Devon requests a variance of confirmation samples to be collected representative of no more than 400 square feet in areas in the remainder of the release extent. All collected confirmation samples will be submitted for laboratory analysis completed to confirm closure criteria guidelines are met.

Excavation is planned to be completed within 90 days of approval of this Environmental Site Remediation Work Plan. The completed NMCOD C-141 Reports for the incidents are presented in Attachment 6. Excavations will be backfilled with clean soil sourced locally.

Tank Battery and Facility Pad Extending West, Northwest, North, Northeast, and East of the Tank Battery – nKJ1516742526 and nRM2014559127

Of the 61 sample points established on-site at the SDE 31 Federal CTB, sample points were established both inside and outside the earthen berm containment around the tank batteries. Exceedances to closure criteria were identified at most sample points within the battery containment and at sample points to the East and West of the battery containment. The soil will be excavated from the impacted area at the tank battery and East and West sides of the battery to a planned depth of 1-2.5 feet below ground surface (bgs).
With consideration to safety related to undermining the foundation for all pumps, tanks, and associated equipment, contaminated soils within the earthen containment will be excavated to 6 inches, or up to 2-feet at BH24-04 and BH23-12, around the tank batteries.

A hand crew and/or hydrovac truck will be utilized to remove contaminated soil in close proximity to underground flowlines and any other remaining equipment. Heavy equipment will be used to complete excavation in areas free of remaining infrastructure or equipment. Field screening will be utilized to find the horizontal and vertical extents of the impacted area. Confirmation samples will be collected as per New Mexico Oil Conservation Division guidance and submitted for laboratory analysis of all applicable parameters.
The estimated volume to be excavated is **90 cubic yards**.

Sample Point	Excavation Depth	Remediation Method
BH23-01	1'	Backhoe/Handcrew
BH23-07	1'	Backhoe/Handcrew
BH23-14	2.5'	Backhoe/Handcrew
BH23-15	1'	Backhoe
BH23-34	1'	Hancrew
BH23-35	1'	Backhoe/Handcrew
Defer to 6 Inches in Containment		
SS20-01/BH24-01	0.5'	Hand Crew
SS20-02		
BH20-03		
BH23-10		
BH23-11		
BH23-12		
BH24-02		
BH24-04		

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

Stephanie McCarty

Stephanie McCarty
ENVIRONMENTAL SPECIALIST, REPORTING

June 10, 2025
Date

Kent Stallings

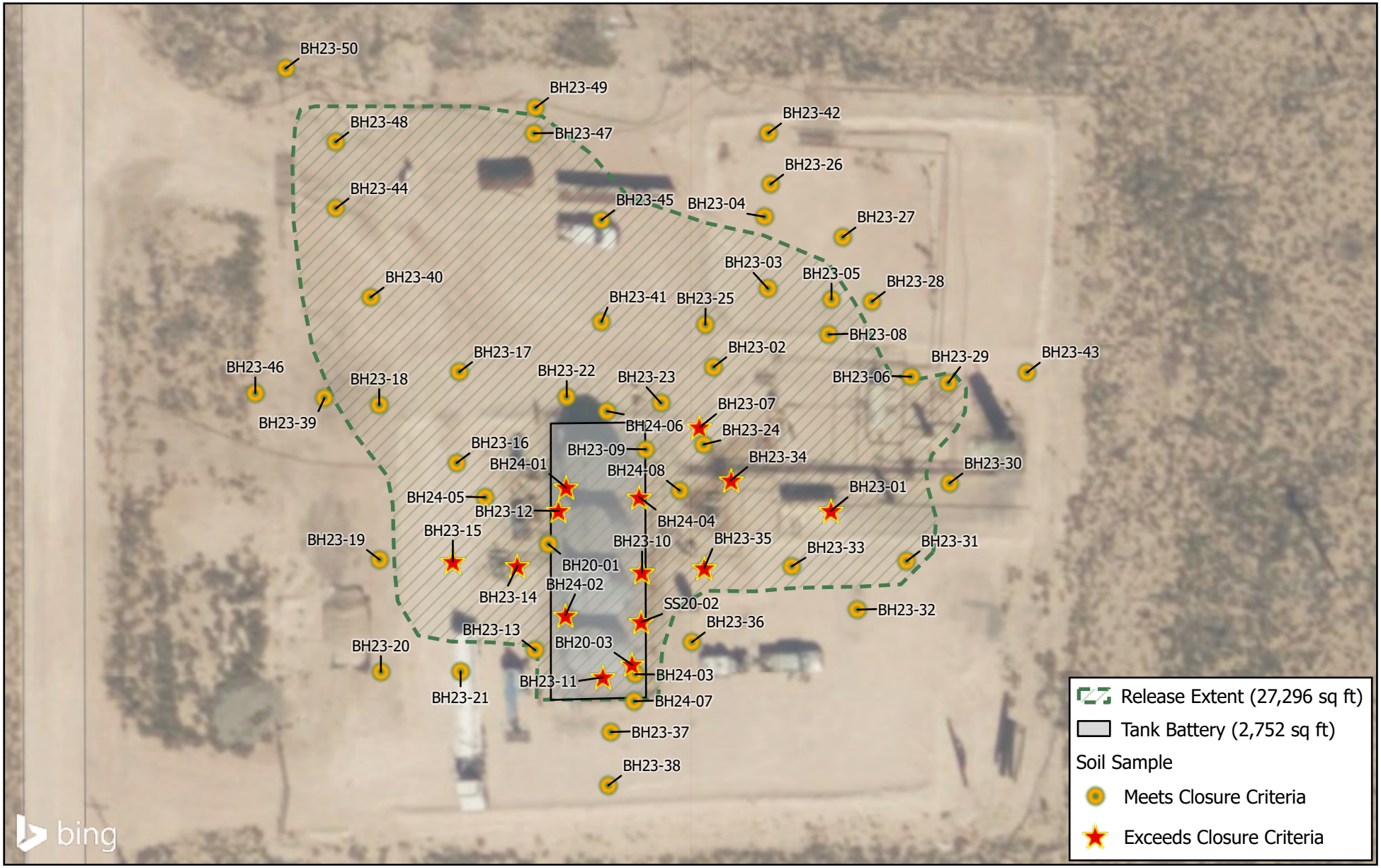
Kent Stallings, P.G.
PROJECT MANAGER, REPORT REVIEW

June 17, 2025
Date

Attachments

Attachment 1. Figures
Attachment 2. Characterization Sample 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 1



VERTEX

0 20 40 ft

NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Map Center:
Lat/Long: 32.264698°N, 103.716421°W

Date: May 15/25

N

Characterization Sample Site Schematic
SDE 31 Fed CTB (SDE 31 FED 4)

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 10 20 ft

NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Map Center:
Lat/Long: 32.264588°N, 103.716499°W

Date: May 15/25

N

Proposed Excavation Site Schematic
SDE 31 Fed CTB (SDE 31 FED 4)

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: SDE 31 Federal CTB
NM OCD Tracking #: nKJ1516742526, nRM2014559127
Project #: 24E-01499
Lab Reports: 2001883, 2303491, 2303583, 2307350, 2307361, 2307362, 2307446, 2307525 and 885-2613

Table 2. Characterization Sample Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH20-01	2	January 20, 2020	ND	ND	ND	59	ND	59	59	920
SS20-02	0	January 20, 2020	0.81	**90.81**	980	20,000	9,900	**20,980**	**30,880**	120
BH20-03	1	January 20, 2020	0.65	**70.65**	1,000	6,400	2,500	**7,400**	**9,900**	120
	2	January 20, 2020	ND	2.22	54	650	300	704	1,004	94
BH23-01	0	March 7, 2023	ND	ND	ND	2,200	1,600	**2,200**	**3,800**	160
	2	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	62
BH23-02	0	March 7, 2023	ND	ND	ND	270	270	270	540	110
	2	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	90
BH23-03	0	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	1,600
	2	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	1,900
	4	March 8, 2023	ND	ND	ND	ND	ND	ND	ND	1,000
	5	March 8, 2023	ND	ND	ND	ND	ND	ND	ND	810
BH23-04	0	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	99
BH23-05	0	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	2,400
	2	March 7, 2023	ND	ND	ND	540	420	540	960	3,100
	4	March 8, 2023	ND	ND	ND	ND	ND	ND	ND	3,500
	5	March 8, 2023	ND	ND	ND	150	120	150	270	3,300
BH23-06	0	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	260
	2	March 7, 2023	ND	ND	ND	ND	ND	ND	ND	210
	4	March 8, 2023	ND	ND	ND	ND	ND	ND	ND	110
BH23-07	0	March 8, 2023	ND	ND	ND	1,300	1,500	**1,300**	**2,800**	120
	2	March 8, 2023	ND	ND	ND	100	120	100	220	71
BH23-08	0	July 9, 2023	ND	ND	ND	700	630	700	1,330	820
	2	July 9, 2023	ND	ND	ND	440	330	440	770	1,200
	4	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	1,900
BH23-09	0	July 9, 2023	ND	ND	ND	220	220	220	440	1,700
	2	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	600
	4	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	130
	6	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	120
BH23-10	0	July 9, 2023	ND	ND	ND	21,000	7,400	**21,000**	**28,400**	180
	2	July 9, 2023	ND	ND	ND	990	560	990	1,550	ND
	4	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	66
BH23-11	0	July 9, 2023	ND	ND	ND	9,400	3,000	**9,400**	**12,400**	75
	2	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	4	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	6	July 9, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-12	0	July 10, 2023	ND	ND	93	14,000	7,100	**14,093**	**21,193**	810
	2	July 10, 2023	ND	ND	11	6,800	2,500	**6,811**	**9,311**	750
	4	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	920
BH23-13	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	100
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	4	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND

VERTEX

Client Name: Devon Energy Production Company, LP
Site Name: SDE 31 Federal CTB
NM OCD Tracking #: nKJ1516742526, nRM2014559127
Project #: 24E-01499
Lab Reports: 2001883, 2303491, 2303583, 2307350, 2307361, 2307362, 2307446, 2307525 and 885-2613

Table 2. Characterization Sample Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH23-14	0	July 10, 2023	ND	ND	ND	620	480	620	1,100	**18,000**
	2	July 10, 2023	ND	ND	ND	1,600	1,700	**1,600**	**3,300**	5,800
	4	July 10, 2023	ND	ND	ND	120	120	120	240	4,900
BH23-15	0	July 10, 2023	ND	ND	ND	55	78	55	133	**21,000**
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	420
	3	July 10, 2023	ND	ND	ND	11	ND	11	11	1,700
BH23-16	0	July 10, 2023	ND	ND	ND	170	150	170	320	9,900
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	520
	4	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	2,300
BH23-17	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	2,300
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	2,100
BH23-18	0	July 10, 2023	ND	ND	ND	720	370	720	1,090	1,700
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	170
BH23-19	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	160
BH23-20	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	160
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	410
BH23-21	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	220
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-22	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	640
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	86
BH23-23	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	8,700
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	280
BH23-24	0	July 10, 2023	ND	ND	ND	160	130	160	290	220
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	460
BH23-25	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	440
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	1,000
BH23-26	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	280
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	190
BH23-27	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-28	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-29	0	July 10, 2023	ND	ND	ND	68	50	68	118	3,100
	2	July 10, 2023	ND	ND	ND	53	ND	53	53	150
BH23-30	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	86
BH23-31	0	July 10, 2023	ND	ND	ND	67	82	67	149	96
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-32	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	74
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-33	0	July 10, 2023	ND	ND	ND	780	650	780	1,430	790
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Devon Energy Production Company, LP
Site Name: SDE 31 Federal CTB
NM OCD Tracking #: nKJ1516742526, nRM2014559127
Project #: 24E-01499
Lab Reports: 2001883, 2303491, 2303583, 2307350, 2307361, 2307362, 2307446, 2307525 and 885-2613

Table 2. Characterization Sample Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH23-34	0	July 10, 2023	ND	ND	ND	1,400	960	**1,400**	**2,360**	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-35	0	July 10, 2023	ND	ND	ND	3,200	4,000	**3,200**	**7,200**	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	200
BH23-36	0	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-37	0	July 10, 2023	ND	ND	ND	23	ND	23	23	340
	2	July 10, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-38	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	69
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	110
BH23-39	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	430
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	95
BH23-40	0	July 11, 2023	ND	ND	ND	14	ND	14	14	3,400
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	1,800
BH23-41	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	2,500
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	590
BH23-42	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	190
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	99
BH23-43	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	77
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-44	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	670
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	1,100
BH23-45	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	1,800
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	1,200
BH23-46	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	260
BH23-47	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	1,100
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	330
BH23-48	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	2,100
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	1,400
BH23-49	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-50	0	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	July 11, 2023	ND	ND	ND	ND	ND	ND	ND	310
BH24-01	0.5	April 5, 2024	ND	0.93	120	12000	2500	12120	14620	2,500
	2	April 4, 2024	ND	ND	ND	290	200	290	490	950
BH24-02	0.5	April 5, 2024	ND	ND	ND	1700	1100	1700	2800	160
	2	April 4, 2024	ND	ND	ND	68	170	68	238	320
BH24-03	0.5	April 5, 2024	ND	ND	ND	750	1200	750	1950	5,300
	2	April 4, 2024	ND	ND	ND	ND	ND	ND	ND	2,100

Client Name: Devon Energy Production Company, LP
Site Name: SDE 31 Federal CTB
NM OCD Tracking #: nKJ1516742526, nRM2014559127
Project #: 24E-01499
Lab Reports: 2001883, 2303491, 2303583, 2307350, 2307361, 2307362, 2307446, 2307525 and 885-2613

Table 2. Characterization Sample Laboratory Results - Depth to Groundwater 51-100 feet bgs

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-04	0.5	April 4, 2024	ND	ND	ND	14000	7000	14000	21000	8,700
	2	April 5, 2024	ND	ND	ND	1300	1200	1300	2500	4,100
	4	April 5, 2024	ND	ND	ND	2500	2200	2500	4700	3,900
	6	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	1,700
	7	April 5, 2024	ND	ND	ND	220	150	220	370	9,600
BH24-05	0.5	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	4,600
	2	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	4,500
BH24-06	0.5	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	16
	2	April 5, 2024	ND	ND	ND	15	ND	15	15	52
BH24-07	0.5	April 5, 2024	ND	ND	ND	14	ND	14	14	130
	2	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	31
BH24-08	0.5	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	130
	2	April 5, 2024	ND	ND	ND	ND	ND	ND	ND	41

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

ATTACHMENT 3

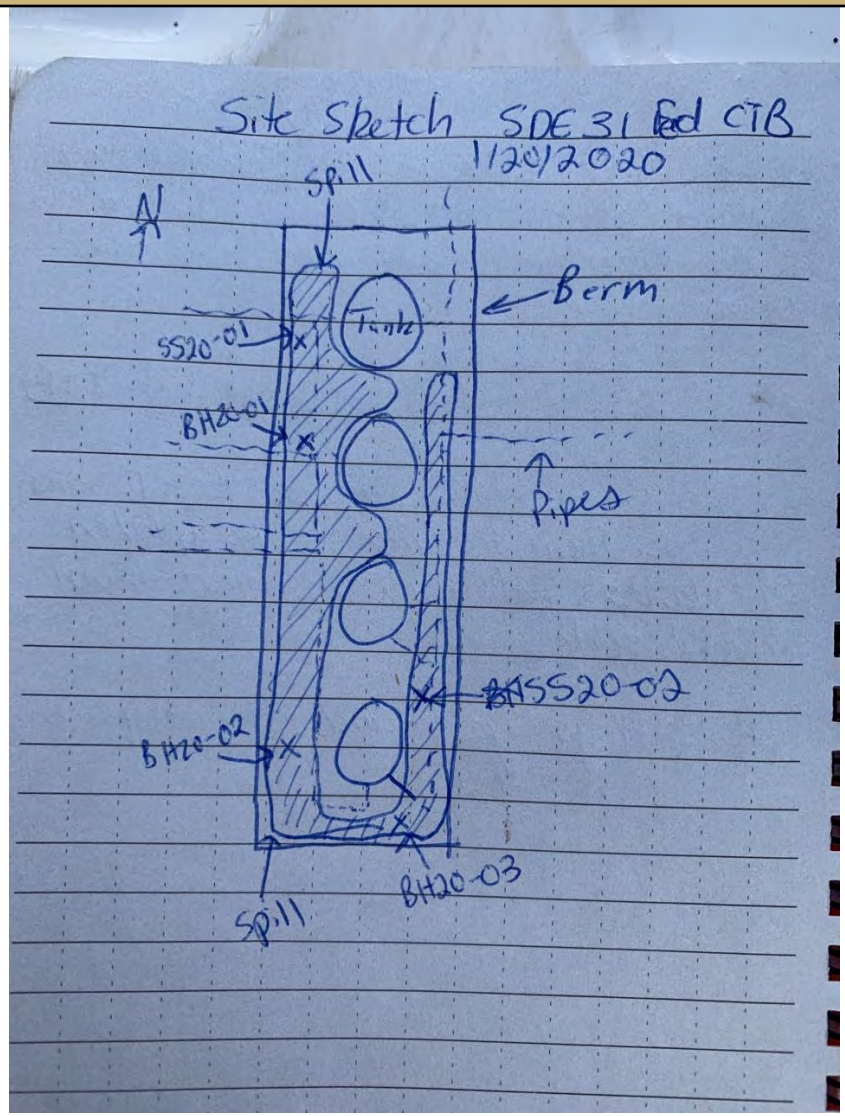
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	1/20/2020
Site Location Name:	SDE 31 Federal CTB	Report Run Date:	1/21/2020 12:55 AM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	Spill 12-30-2019
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	1/20/2020 9:05 AM
Arrived at Site	1/20/2020 10:50 AM
Departed Site	1/20/2020 3:20 PM
Returned to Office	1/20/2020 4:32 PM

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

Next Steps & Recommendations

1 Send samples to lab and await results

Sampling

BH20-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
1 ft.						✓	32.26461656, -103.71658313	Yes
2 ft.					Benzene (EPA SW-846 Method 8021B/8260B), BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	See bh20-01 1', See bh20-01 1'	Yes

BH20-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
1 ft.						✓	32.26451615, -103.71655917	Yes
2 ft.						✓	32.26451615, -103.71655917	Yes

Daily Site Visit Report

BH20-03

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
1 ft.					Benzene (EPA SW-846 Method 8021B/8260B), BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.26449284, -103.71649270	Yes
2 ft.					Benzene (EPA SW-846 Method 8021B/8260B), BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.26449284, -103.71649270	Yes

BH20-04

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
1 ft.						✓	32.26461642, -103.71649062	Yes
2 ft.						✓	32.26461642, -103.71649062	Yes

SS20-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
						✓	,	No

Daily Site Visit Report

0 ft.						✓	32.26466632, -103.71657033	Yes

SS20-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.					Benzene (EPA SW-846 Method 8021B/8260B), BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.26453883, -103.71649400	Yes

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: Southeast
	
West end of tank battery spill	Likely spill origin
Viewing Direction: South	**Viewing Direction**: South
	
West end of tanks/spill area	View of east side of tanks

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: South
	
Trace staining on outside of berm	BH20-01 Staining only at surface level

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: BH20-01	**Sample Point ID**: SS20-01
	
Depth: 1 ft.	**Depth:** 0 ft.
Sample Point ID: BH20-02	**Sample Point ID**: BH20-02
	
Depth: 1 ft.	**Depth:** 2 ft.

Daily Site Visit Report

Sample Point ID: SS20-02	**Sample Point ID**: BH20-03
	
Depth: 0 ft.	**Depth:** 1 ft.

Sample Point ID: BH20-03	**Sample Point ID**: BH20-04
	
Depth: 2 ft.	**Depth:** 1 ft.

Daily Site Visit Report

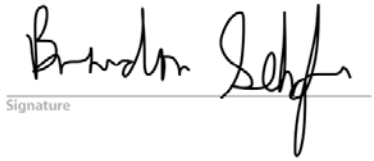
Sample Point ID: BH20-04

Depth: 2 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brandon Schafer

Signature: 
Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/9/2023
Site Location Name:	SDE 31 Federal 4	Report Run Date:	7/9/2023 11:17 PM
Client Contact Name:	Dale Woodall	API #:	30-025-32716
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/9/2023 7:24 AM
Departed Site	7/9/2023 2:12 PM

Field Notes

7:32 Completed JSA on arrival. On site to continue delineation of three releases.

8:01 Swept sampling locations with magnetic locator prior to ground disturbance. Significant interference present due to steel infrastructure around sampling areas.

11:24 Advanced BH23-08 north of separator equipment.

11:25 Advanced BH23-09, BH23-10, and BH23-11 inside battery containment.

Next Steps & Recommendations

1 Continue delineation.

Daily Site Visit Report

Site Photos

Viewing Direction: East

South of north cattle guard facing east.

Viewing Direction: South

Northwest of tanks facing south. Advanced BH23-08 north of separator equipment.

Viewing Direction: South

Northeast of tanks facing south. Advanced BH23-09 inside containment west of north tank.

Viewing Direction: North

East of tanks facing north. Advanced BH23-10 inside containment west of tanks.

Daily Site Visit Report

Viewing Direction: West

Southeast of tanks facing west. Advanced BH23-11 inside containment south of tanks tank.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/10/2023
Site Location Name:	SDE 31 Federal 4	Report Run Date:	7/11/2023 12:56 AM
Client Contact Name:	Dale Woodall	API #:	30-025-32716
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/10/2023 6:36 AM
Departed Site	7/10/2023 5:01 PM

Field Notes

6:46 Completed JSA on arrival. On site to continue delineation.

7:30 Marked all sampling points and swept areas with magnetic locator prior to ground disturbance.

13:20 Buried pipeline exposed when initially digging BH23-27. Moved BH23-27 east 3 feet.

14:54 Advanced Boreholes BH23-12 through BH33-37 to refine delineation.

16:35 Boreholes BH23-12, BH23-13, BH23-14, and BH23-16 advanced to 4 feet bgs. Borehole BH23-15 was advanced to 3 feet bgs due to refusal. Samples were collected at 0 and 2 feet bgs as well as the deepest point at each borehole.

16:36 Boreholes BH23-17 through BH23- 37 were advanced to 2 feet bgs with samples collected at 0 and 2 feet.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: East

South of north cattle guard facing east.

Viewing Direction: North

West of tanks facing north. Advanced BH23-20 on west side of pad.

Viewing Direction: South

Northwest of tanks facing south. Advanced BH23-22 north of Battery containment.

Viewing Direction: Northeast

West-southwest of tanks facing northeast. Advanced BH23-21 southwest of pump station.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
Northeast of tanks facing south. Advanced BH23-23 north of Battery containment.	East-northeast of tanks facing south. Advanced BH23-24 east of Battery containment.
Viewing Direction: West	**Viewing Direction**: South
	
Northeast of tanks facing west. Advanced BH23-25 northeast of Battery containment.	North edge of pad west of manifold facing south. Advanced BH23-26 southwest of manifold.

Daily Site Visit Report

Viewing Direction: South

South of manifold on north side of pad facing south. Pipeline exposed while digging.

Viewing Direction: South

South of manifold on north side of pad facing south. Advanced BH23-27 south of manifold and east of surface pipeline on north side of pad.

Viewing Direction: South

North side of pad facing south. Advanced BH23 -28 north of separator equipment.

Viewing Direction: South

East of north tank facing south. Advanced BH23-12 inside tank containment west of tanks.

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: North
	
Northwest of treater facing northwest. Advanced BH23-29 on east side of pad.	Southwest of treater facing north. Advanced BH23-30 on east side of pad.
Viewing Direction: North	**Viewing Direction**: East
	
Southwest of treater facing north. Advanced BH23-31 and BH23-32 south of separator equipment.	East of tank battery facing east. Advanced BH23-33 south of separator equipment.

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: West
	
East of tank battery facing north. Advanced BH23-34 between tanks and separator equipment.	East of tank battery facing west. Advanced BH23-35 east of tank containment.

Viewing Direction: Northwest	**Viewing Direction**: North
	
East of south tank facing northwest. Advanced BH23-36 east of tank containment.	South of tanks facing north. Advanced BH23-37 south of tank containment.

Daily Site Visit Report

Viewing Direction: North

Southwest of south tank facing north. Advanced BH23-13 west of south tank.

Viewing Direction: North

West of tanks facing north. Advanced BH23-14 between tanks and pump station.

Viewing Direction: East

West of tanks facing east. Advanced BH23-15 west of pump station.

Viewing Direction: South

West of tanks facing south. Advanced BH23-16 west of pumps.

Daily Site Visit Report

Viewing Direction: Southeast

Northwest of tanks facing southeast. Advanced BH23-17 northwest of pumps.

Viewing Direction: East

West -northwest of tanks facing east. Advanced BH23-18 on west side of pad.

Viewing Direction: North

West of tanks facing north. Advanced BH23-19 on west side of pad.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/11/2023
Site Location Name:	SDE 31 Federal CTB	Report Run Date:	7/11/2023 10:56 PM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/11/2023 8:30 AM
Departed Site	7/11/2023 1:23 PM

Field Notes

8:41 On site, completed JSAs

8:47 Marking planned sampling areas and running secondary sweep with magnetic locator

10:33 Stepping out sample points that exceeded reclamation criteria

13:16 Horizontal delineation complete. All samples jarred and on ice

Next Steps & Recommendations

1 Remediation plan

Daily Site Visit Report

Site Photos

Viewing Direction: Northwest

Containment and a sampling area

Viewing Direction: South

BH23-50 0ft, 2ft

Viewing Direction: Southeast

BH23-48 0ft, 2ft

Viewing Direction: South

BH23-49 0ft, 2ft

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
BH23-47 0ft, 2ft	BH23-44 0ft, 2ft
Viewing Direction: South	**Viewing Direction**: South
	
BH23-41 0ft, 2ft	BH23-42 0ft, 2ft

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: Northeast
	
BH23-43 0ft, 2ft	East containment and sampling area

Viewing Direction: North	**Viewing Direction**: East
	
Western sampling area	Placard

Daily Site Visit Report

Viewing Direction: North

BH23-38 0ft, 2ft

Viewing Direction: East

BH23-39 0ft, 2ft

Viewing Direction: East

BH23-46 0ft, 2ft

Viewing Direction: Southeast

BH23-40 0ft, 2ft

Daily Site Visit Report

Viewing Direction: Southeast

BH23-45 0ft, 2ft

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Sally Carttar

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

January 28, 2020

Natalie Gordon

Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: SDE 31 Fed CTB OrderNo.: 2001883

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 4 sample(s) on 1/22/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2001883**
Date Reported: **1/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** BH20-01 1'-2'
Project: SDE 31 Fed CTB **Collection Date:** 1/20/2020 12:05:00 PM
Lab ID: 2001883-001 **Matrix:** SOIL **Received Date:** 1/22/2020 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	59	9.0		mg/Kg	1	1/23/2020 12:01:36 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/23/2020 12:01:36 PM
Surr: DNOP	117	55.1-146		%Rec	1	1/23/2020 12:01:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/24/2020 3:57:07 AM
Surr: BFB	84.6	66.6-105		%Rec	1	1/24/2020 3:57:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	1/24/2020 3:57:07 AM
Toluene	ND	0.047		mg/Kg	1	1/24/2020 3:57:07 AM
Ethylbenzene	ND	0.047		mg/Kg	1	1/24/2020 3:57:07 AM
Xylenes, Total	ND	0.093		mg/Kg	1	1/24/2020 3:57:07 AM
Surr: 4-Bromofluorobenzene	92.8	80-120		%Rec	1	1/24/2020 3:57:07 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	920	60		mg/Kg	20	1/24/2020 1:47:45 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001883**
Date Reported: **1/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** SS20-02 0"
Project: SDE 31 Fed CTB **Collection Date:** 1/20/2020 12:45:00 PM
Lab ID: 2001883-002 **Matrix:** SOIL **Received Date:** 1/22/2020 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	20000	890		mg/Kg	100	1/23/2020 12:10:45 PM
Motor Oil Range Organics (MRO)	9900	4500		mg/Kg	100	1/23/2020 12:10:45 PM
Surr: DNOP	0	55.1-146	S	%Rec	100	1/23/2020 12:10:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	980	24		mg/Kg	5	1/24/2020 4:20:23 AM
Surr: BFB	713	66.6-105	S	%Rec	5	1/24/2020 4:20:23 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.81	0.12		mg/Kg	5	1/24/2020 4:20:23 AM
Toluene	24	0.24		mg/Kg	5	1/24/2020 4:20:23 AM
Ethylbenzene	13	0.24		mg/Kg	5	1/24/2020 4:20:23 AM
Xylenes, Total	53	0.48		mg/Kg	5	1/24/2020 4:20:23 AM
Surr: 4-Bromofluorobenzene	173	80-120	S	%Rec	5	1/24/2020 4:20:23 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	120	60		mg/Kg	20	1/24/2020 2:00:05 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001883**
Date Reported: **1/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** BH20-03 0-1'
Project: SDE 31 Fed CTB **Collection Date:** 1/20/2020 1:15:00 PM
Lab ID: 2001883-003 **Matrix:** SOIL **Received Date:** 1/22/2020 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	6400	470		mg/Kg	50	1/23/2020 12:19:54 PM
Motor Oil Range Organics (MRO)	2500	2300		mg/Kg	50	1/23/2020 12:19:54 PM
Surr: DNOP	0	55.1-146	S	%Rec	50	1/23/2020 12:19:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1000	92		mg/Kg	20	1/26/2020 11:34:20 AM
Surr: BFB	272	66.6-105	S	%Rec	20	1/26/2020 11:34:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	0.65	0.023		mg/Kg	1	1/24/2020 2:58:54 PM
Toluene	19	0.92		mg/Kg	20	1/26/2020 11:34:20 AM
Ethylbenzene	10	0.92		mg/Kg	20	1/26/2020 11:34:20 AM
Xylenes, Total	41	1.8		mg/Kg	20	1/26/2020 11:34:20 AM
Surr: 4-Bromofluorobenzene	120	80-120		%Rec	20	1/26/2020 11:34:20 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	120	60		mg/Kg	20	1/24/2020 2:12:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2001883**
Date Reported: **1/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** BH20-03 1-2'
Project: SDE 31 Fed CTB **Collection Date:** 1/20/2020 1:25:00 PM
Lab ID: 2001883-004 **Matrix:** SOIL **Received Date:** 1/22/2020 3:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	650	19		mg/Kg	2	1/23/2020 4:40:26 PM
Motor Oil Range Organics (MRO)	300	96		mg/Kg	2	1/23/2020 4:40:26 PM
Surr: DNOP	116	55.1-146		%Rec	2	1/23/2020 4:40:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	54	4.8		mg/Kg	1	1/24/2020 3:45:51 PM
Surr: BFB	400	66.6-105	S	%Rec	1	1/24/2020 3:45:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	1/24/2020 3:45:51 PM
Toluene	0.25	0.048		mg/Kg	1	1/24/2020 3:45:51 PM
Ethylbenzene	0.37	0.048		mg/Kg	1	1/24/2020 3:45:51 PM
Xylenes, Total	1.6	0.096		mg/Kg	1	1/24/2020 3:45:51 PM
Surr: 4-Bromofluorobenzene	123	80-120	S	%Rec	1	1/24/2020 3:45:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	94	60		mg/Kg	20	1/24/2020 2:24:48 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	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001883**
28-Jan-20

Client: Vertex Resource Group Ltd.
Project: SDE 31 Fed CTB

Sample ID: **MB-50025**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **50025**	RunNo: **66053**							
Prep Date: **1/24/2020**	Analysis Date: **1/24/2020**	SeqNo: **2269609**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50025**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **50025**	RunNo: **66053**							
Prep Date: **1/24/2020**	Analysis Date: **1/24/2020**	SeqNo: **2269611**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.6	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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001883**
28-Jan-20

Client: Vertex Resource Group Ltd.
Project: SDE 31 Fed CTB

Sample ID: **LCS-49989** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **49989** RunNo: **66004**
Prep Date: **1/23/2020** Analysis Date: **1/23/2020** SeqNo: **2266978** 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	100	63.9	124			
Surr: DNOP	4.5		5.000		89.5	55.1	146			

Sample ID: **MB-49989** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **49989** RunNo: **66004**
Prep Date: **1/23/2020** Analysis Date: **1/23/2020** SeqNo: **2266979** 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	9.3		10.00		93.0	55.1	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 range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001883**
28-Jan-20

Client: Vertex Resource Group Ltd.
Project: SDE 31 Fed CTB

Sample ID: **mb-49978**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **49978**	RunNo: **66017**							
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267664**	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	890		1000		88.5	66.6	105			

Sample ID: **lcs-49978**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **49978**	RunNo: **66017**							
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267665**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.7	80	120			
Surr: BFB	990		1000		99.4	66.6	105			

Sample ID: **mb-49997**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **49997**	RunNo: **66055**							
Prep Date: **1/23/2020**	Analysis Date: **1/24/2020**	SeqNo: **2268909**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	920		1000		92.4	66.6	105			

Sample ID: **lcs-49997**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **49997**	RunNo: **66055**							
Prep Date: **1/23/2020**	Analysis Date: **1/24/2020**	SeqNo: **2268910**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	940		1000		94.3	66.6	105			

Sample ID: **mb-50005**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **50005**	RunNo: **66055**							
Prep Date: **1/23/2020**	Analysis Date: **1/25/2020**	SeqNo: **2268933**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	810		1000		81.2	66.6	105			

Sample ID: **lcs-50005**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **50005**	RunNo: **66055**							
Prep Date: **1/23/2020**	Analysis Date: **1/25/2020**	SeqNo: **2268934**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	860		1000		86.2	66.6	105			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001883**
28-Jan-20

Client: Vertex Resource Group Ltd.
Project: SDE 31 Fed CTB

Sample ID: **MB-50043**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **50043**	RunNo: **66068**
Prep Date: **1/24/2020**	Analysis Date: **1/27/2020**	SeqNo: **2269049** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	770		1000		77.0	66.6	105			

Sample ID: **LCS-50043**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50043**	RunNo: **66068**
Prep Date: **1/24/2020**	Analysis Date: **1/27/2020**	SeqNo: **2269050** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		89.0	66.6	105			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001883**
28-Jan-20

Client: Vertex Resource Group Ltd.
Project: SDE 31 Fed CTB

Sample ID: **mb-49978**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**						
Client ID: **PBS**	Batch ID: **49978**	RunNo: **66017**						
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267696**	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		99.9	80	120			

Sample ID: **LCS-49978**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**						
Client ID: **LCSS**	Batch ID: **49978**	RunNo: **66017**						
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267697**	Units: **mg/Kg**					

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.8	80	120			
Toluene	0.96	0.050	1.000	0	96.3	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.3	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.0	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID: **mb-50005**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**						
Client ID: **PBS**	Batch ID: **50005**	RunNo: **66055**						
Prep Date: **1/23/2020**	Analysis Date: **1/25/2020**	SeqNo: **2268950**	Units: **%Rec**					

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.92		1.000		91.8	80	120			

Sample ID: **LCS-50005**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**						
Client ID: **LCSS**	Batch ID: **50005**	RunNo: **66055**						
Prep Date: **1/23/2020**	Analysis Date: **1/25/2020**	SeqNo: **2268951**	Units: **%Rec**					

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.91		1.000		90.6	80	120			

Sample ID: **MB-50043**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**						
Client ID: **PBS**	Batch ID: **50043**	RunNo: **66068**						
Prep Date: **1/24/2020**	Analysis Date: **1/27/2020**	SeqNo: **2269077**	Units: **%Rec**					

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		86.6	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001883**
28-Jan-20

Client: Vertex Resource Group Ltd.
Project: SDE 31 Fed CTB

Sample ID: **LCS-50043**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **50043**	RunNo: **66068**
Prep Date: **1/24/2020**	Analysis Date: **1/27/2020**	SeqNo: **2269078** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.88		1.000		87.7	80	120			

Qualifiers:

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

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 CARLSBAD** Work Order Number: **2001883** RcptNo: **1**

Received By: **Desiree Dominguez** **1/22/2020 3:30:00 PM** DD

Completed By: **Erin Melendrez** **1/22/2020 4:13:35 PM** EM

Reviewed By: EO 1/22/20

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: DM 1/22/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good				

Chain-of-Custody Record

Client: Vertex

Mailing Address: on file

Phone #: on file

email or Fax#: Natalie Gordon

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 day
☑ Standard ☐ Rush

Project Name: SOE 31 FedCTB

Project #: 20E-00141-005

Project Manager: Natalie Gordon

Sampler: Brandon Schaefer

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.4 - 0.0 = 2.4 (°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. 2001883	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)
1/20	12:05	Soil	BH20-01 1'-2'	4 oz	ice	-001	X	X					X			
1/20	12:45		SS20-02 0''			-002										
1/20	13:15		BH20-03 0-1'			-003										
1/20	13:25		BH20-03 1-2'			-004										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/20	1400	Brandon Schaefer				
					1/21/20	1400
1/21/20	1900			Courier	1/22/20	15:30

Remarks: cc: Natalie Gordon

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

March 17, 2023

Kent Stallings

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

RE: SDE 31 Federal 4 OrderNo.: 2303491

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 3/9/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 0'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 9:30:00 AM
Lab ID: 2303491-001 **Matrix:** SOIL **Received Date:** 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	2200	92		mg/Kg	10	3/10/2023 3:44:02 PM
Motor Oil Range Organics (MRO)	1600	460		mg/Kg	10	3/10/2023 3:44:02 PM
Surr: DNOP	0	69-147	S	%Rec	10	3/10/2023 3:44:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/11/2023 6:33:53 AM
Surr: BFB	102	37.7-212		%Rec	1	3/11/2023 6:33:53 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	3/11/2023 6:33:53 AM
Toluene	ND	0.046		mg/Kg	1	3/11/2023 6:33:53 AM
Ethylbenzene	ND	0.046		mg/Kg	1	3/11/2023 6:33:53 AM
Xylenes, Total	ND	0.092		mg/Kg	1	3/11/2023 6:33:53 AM
Surr: 4-Bromofluorobenzene	86.9	70-130		%Rec	1	3/11/2023 6:33:53 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	160	60		mg/Kg	20	3/13/2023 10:55:25 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 **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 2'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 9:45:00 AM
Lab ID: 2303491-002 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 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	3/14/2023 8:30:16 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/14/2023 8:30:16 AM
Surr: DNOP	91.4	69-147		%Rec	1	3/14/2023 8:30:16 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2023 6:57:31 AM
Surr: BFB	107	37.7-212		%Rec	1	3/11/2023 6:57:31 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/11/2023 6:57:31 AM
Toluene	ND	0.048		mg/Kg	1	3/11/2023 6:57:31 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2023 6:57:31 AM
Xylenes, Total	ND	0.097		mg/Kg	1	3/11/2023 6:57:31 AM
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	3/11/2023 6:57:31 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	62	60		mg/Kg	20	3/13/2023 11:07:50 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 0'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 10:00:00 AM
Lab ID: 2303491-003 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	270	8.8		mg/Kg	1	3/14/2023 8:53:48 AM
Motor Oil Range Organics (MRO)	270	44		mg/Kg	1	3/14/2023 8:53:48 AM
Surr: DNOP	99.8	69-147		%Rec	1	3/14/2023 8:53:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2023 7:21:17 AM
Surr: BFB	104	37.7-212		%Rec	1	3/11/2023 7:21:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/11/2023 7:21:17 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2023 7:21:17 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2023 7:21:17 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/11/2023 7:21:17 AM
Surr: 4-Bromofluorobenzene	88.9	70-130		%Rec	1	3/11/2023 7:21:17 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	110	59		mg/Kg	20	3/13/2023 11:20:14 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 2'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 10:15:00 AM
Lab ID: 2303491-004 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 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	3/14/2023 5:04:23 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/14/2023 5:04:23 PM
Surr: DNOP	88.8	69-147		%Rec	1	3/14/2023 5:04:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2023 7:45:10 AM
Surr: BFB	105	37.7-212		%Rec	1	3/11/2023 7:45:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/11/2023 7:45:10 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2023 7:45:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2023 7:45:10 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/11/2023 7:45:10 AM
Surr: 4-Bromofluorobenzene	89.5	70-130		%Rec	1	3/11/2023 7:45:10 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	90	60		mg/Kg	20	3/13/2023 11:57:29 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 **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 0'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 10:30:00 AM
Lab ID: 2303491-005 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 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	3/14/2023 5:27:59 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/14/2023 5:27:59 PM
Surr: DNOP	108	69-147		%Rec	1	3/14/2023 5:27:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/11/2023 8:09:04 AM
Surr: BFB	106	37.7-212		%Rec	1	3/11/2023 8:09:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/11/2023 8:09:04 AM
Toluene	ND	0.050		mg/Kg	1	3/11/2023 8:09:04 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/11/2023 8:09:04 AM
Xylenes, Total	ND	0.10		mg/Kg	1	3/11/2023 8:09:04 AM
Surr: 4-Bromofluorobenzene	90.2	70-130		%Rec	1	3/11/2023 8:09:04 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1600	60		mg/Kg	20	3/14/2023 11:37:12 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 2'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 10:45:00 AM
Lab ID: 2303491-006 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	3/14/2023 5:51:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/14/2023 5:51:37 PM
Surr: DNOP	116	69-147		%Rec	1	3/14/2023 5:51:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2023 8:32:59 AM
Surr: BFB	108	37.7-212		%Rec	1	3/11/2023 8:32:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/11/2023 8:32:59 AM
Toluene	ND	0.047		mg/Kg	1	3/11/2023 8:32:59 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2023 8:32:59 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/11/2023 8:32:59 AM
Surr: 4-Bromofluorobenzene	90.9	70-130		%Rec	1	3/11/2023 8:32:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1900	60		mg/Kg	20	3/14/2023 12:14:15 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 **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 0'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 11:00:00 AM
Lab ID: 2303491-007 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	3/14/2023 6:15:17 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/14/2023 6:15:17 PM
Surr: DNOP	96.7	69-147		%Rec	1	3/14/2023 6:15:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2023 8:56:41 AM
Surr: BFB	106	37.7-212		%Rec	1	3/11/2023 8:56:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	3/11/2023 8:56:41 AM
Toluene	ND	0.047		mg/Kg	1	3/11/2023 8:56:41 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2023 8:56:41 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/11/2023 8:56:41 AM
Surr: 4-Bromofluorobenzene	90.4	70-130		%Rec	1	3/11/2023 8:56:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	3/14/2023 1:15:59 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 2'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 11:15:00 AM
Lab ID: 2303491-008 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 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	3/14/2023 6:38:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/14/2023 6:38:54 PM
Surr: DNOP	93.9	69-147		%Rec	1	3/14/2023 6:38:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2023 9:20:20 AM
Surr: BFB	108	37.7-212		%Rec	1	3/11/2023 9:20:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/11/2023 9:20:20 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2023 9:20:20 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2023 9:20:20 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/11/2023 9:20:20 AM
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	3/11/2023 9:20:20 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	99	60		mg/Kg	20	3/14/2023 1:28:20 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 **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 0'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 11:30:00 AM
Lab ID: 2303491-009 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	3/14/2023 7:02:26 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	3/14/2023 7:02:26 PM
Surr: DNOP	91.5	69-147		%Rec	1	3/14/2023 7:02:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2023 10:07:21 AM
Surr: BFB	106	37.7-212		%Rec	1	3/11/2023 10:07:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/11/2023 10:07:21 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2023 10:07:21 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2023 10:07:21 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/11/2023 10:07:21 AM
Surr: 4-Bromofluorobenzene	90.2	70-130		%Rec	1	3/11/2023 10:07:21 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	2400	150		mg/Kg	50	3/15/2023 11:32:18 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 2'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 11:45:00 AM
Lab ID: 2303491-010 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	540	10		mg/Kg	1	3/13/2023 6:51:19 PM
Motor Oil Range Organics (MRO)	420	50		mg/Kg	1	3/13/2023 6:51:19 PM
Surr: DNOP	107	69-147		%Rec	1	3/13/2023 6:51:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2023 10:31:03 AM
Surr: BFB	102	37.7-212		%Rec	1	3/11/2023 10:31:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/11/2023 10:31:03 AM
Toluene	ND	0.047		mg/Kg	1	3/11/2023 10:31:03 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2023 10:31:03 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/11/2023 10:31:03 AM
Surr: 4-Bromofluorobenzene	85.8	70-130		%Rec	1	3/11/2023 10:31:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	3100	150		mg/Kg	50	3/15/2023 11:44:39 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-06 0'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 1:00:00 PM
Lab ID: 2303491-011 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	3/14/2023 7:26:01 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/14/2023 7:26:01 PM
Surr: DNOP	99.9	69-147		%Rec	1	3/14/2023 7:26:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/11/2023 10:54:47 AM
Surr: BFB	104	37.7-212		%Rec	1	3/11/2023 10:54:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	3/11/2023 10:54:47 AM
Toluene	ND	0.046		mg/Kg	1	3/11/2023 10:54:47 AM
Ethylbenzene	ND	0.046		mg/Kg	1	3/11/2023 10:54:47 AM
Xylenes, Total	ND	0.093		mg/Kg	1	3/11/2023 10:54:47 AM
Surr: 4-Bromofluorobenzene	90.5	70-130		%Rec	1	3/11/2023 10:54:47 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	260	60		mg/Kg	20	3/14/2023 2:05:22 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 **2303491**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-06 2'
Project: SDE 31 Federal 4
Collection Date: 3/7/2023 1:15:00 PM
Lab ID: 2303491-012 **Matrix:** SOIL
Received Date: 3/9/2023 7:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	3/14/2023 8:13:08 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/14/2023 8:13:08 PM
Surr: DNOP	89.6	69-147		%Rec	1	3/14/2023 8:13:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2023 11:18:36 AM
Surr: BFB	105	37.7-212		%Rec	1	3/11/2023 11:18:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/11/2023 11:18:36 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2023 11:18:36 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2023 11:18:36 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/11/2023 11:18:36 AM
Surr: 4-Bromofluorobenzene	89.6	70-130		%Rec	1	3/11/2023 11:18:36 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	210	60		mg/Kg	20	3/14/2023 2:17:42 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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#: **2303491**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **LCS-73680**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **73680**	RunNo: **95243**							
Prep Date: **3/13/2023**	Analysis Date: **3/13/2023**	SeqNo: **3444558**	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-73690**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **73690**	RunNo: **95280**							
Prep Date: **3/14/2023**	Analysis Date: **3/14/2023**	SeqNo: **3446124**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-73690**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **73690**	RunNo: **95280**							
Prep Date: **3/14/2023**	Analysis Date: **3/14/2023**	SeqNo: **3446125**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.8	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#: **2303491**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **LCS-73598**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **73598**	RunNo: **95220**
Prep Date: **3/9/2023**	Analysis Date: **3/10/2023**	SeqNo: **3444060** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.4		5.000		108	69	147			

Sample ID: **LCS-73599**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **73599**	RunNo: **95220**
Prep Date: **3/9/2023**	Analysis Date: **3/10/2023**	SeqNo: **3444061** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.1	69	147			

Sample ID: **LCS-73626**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **73626**	RunNo: **95220**
Prep Date: **3/9/2023**	Analysis Date: **3/10/2023**	SeqNo: **3444064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	81.6	61.9	130			
Surr: DNOP	4.3		5.000		85.6	69	147			

Sample ID: **MB-73598**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **73598**	RunNo: **95220**
Prep Date: **3/9/2023**	Analysis Date: **3/10/2023**	SeqNo: **3444065** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		105	69	147			

Sample ID: **MB-73599**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **73599**	RunNo: **95220**
Prep Date: **3/9/2023**	Analysis Date: **3/10/2023**	SeqNo: **3444066** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.4		10.00		84.2	69	147			

Sample ID: **MB-73626**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **73626**	RunNo: **95220**
Prep Date: **3/9/2023**	Analysis Date: **3/10/2023**	SeqNo: **3444069** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		111	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2303491**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **lcs-73620**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **73620**	RunNo: **95181**
Prep Date: **3/9/2023**	Analysis Date: **3/11/2023**	SeqNo: **3443463** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.8	70	130			
Surr: BFB	2000		1000		202	37.7	212			

Sample ID: **mb-73620**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **73620**	RunNo: **95181**
Prep Date: **3/9/2023**	Analysis Date: **3/11/2023**	SeqNo: **3443464** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		107	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2303491**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **LCS-73620**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **73620**	RunNo: **95181**
Prep Date: **3/9/2023**	Analysis Date: **3/11/2023**	SeqNo: **3443465** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	1.000	0	80.1	80	120			
Toluene	0.83	0.050	1.000	0	82.8	80	120			
Ethylbenzene	0.81	0.050	1.000	0	81.5	80	120			
Xylenes, Total	2.5	0.10	3.000	0	82.4	80	120			
Surr: 4-Bromofluorobenzene	0.89		1.000		89.4	70	130			

Sample ID: **mb-73620**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **73620**	RunNo: **95181**
Prep Date: **3/9/2023**	Analysis Date: **3/11/2023**	SeqNo: **3443466** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.89		1.000		88.9	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: 2303491

RcptNo: 1

Received By: Tracy Casarrubias 3/9/2023 7:43:00 AM

Completed By: Tracy Casarrubias 3/9/2023 8:18:09 AM

Reviewed By: JH 3-9-23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: JH 3/9/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.9	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Vertex (Deron)

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☒ Rush 5 Day

Project Name:
SDE 31 Federal 4

Project #:
21E-02816-34

Project Manager:
Kent Stallings

Sampler: Zach Englebert
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 4.9-0=4.9 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2303491	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)
3-7-23	9:30	Soil	BH23-01 0'	1 jar: 4 oz.	Ice	001										
	9:45		BH23-01 2'			002										
	10:00		BH23-02 0'			003										
	10:15		BH23-02 2'			004										
	10:30		BH23-03 0'			005										
	10:45		BH23-03 2'			006										
	11:00		BH23-04 0'			007										
	11:15		BH23-04 2'			008										
	11:30		BH23-05 0'			009										
	11:45		BH23-05 2'			010										
	1:00		BH23-06 0'			011										
	1:15		BH23-06 2'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3-7-23	1600	Zach Englebert			3/8/23	845
3/8/23	1900				3/9/23	7:43

Remarks:
Direct Bill to Deron

Deron / Harvard

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

March 17, 2023

Kent Stallings

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

RE: SDE 31 Federal 4 OrderNo.: 2303583

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 7 sample(s) on 3/10/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-07 0'
Project: SDE 31 Federal 4
Collection Date: 3/8/2023 9:30:00 AM
Lab ID: 2303583-001 **Matrix:** SOIL **Received Date:** 3/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	1300	97		mg/Kg	10	3/14/2023 1:40:32 PM
Motor Oil Range Organics (MRO)	1500	480		mg/Kg	10	3/14/2023 1:40:32 PM
Surr: DNOP	0	69-147	S	%Rec	10	3/14/2023 1:40:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/14/2023 4:51:18 PM
Surr: BFB	104	37.7-212		%Rec	1	3/14/2023 4:51:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	3/14/2023 4:51:18 PM
Toluene	ND	0.046		mg/Kg	1	3/14/2023 4:51:18 PM
Ethylbenzene	ND	0.046		mg/Kg	1	3/14/2023 4:51:18 PM
Xylenes, Total	ND	0.093		mg/Kg	1	3/14/2023 4:51:18 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	3/14/2023 4:51:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	120	60		mg/Kg	20	3/14/2023 6:49:19 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 **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-07 2'
Project: SDE 31 Federal 4 **Collection Date:** 3/8/2023 9:45:00 AM
Lab ID: 2303583-002 **Matrix:** SOIL **Received Date:** 3/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	100	9.9		mg/Kg	1	3/14/2023 4:54:54 PM
Motor Oil Range Organics (MRO)	120	49		mg/Kg	1	3/14/2023 4:54:54 PM
Surr: DNOP	108	69-147		%Rec	1	3/14/2023 4:54:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/14/2023 5:38:21 PM
Surr: BFB	105	37.7-212		%Rec	1	3/14/2023 5:38:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	3/14/2023 5:38:21 PM
Toluene	ND	0.046		mg/Kg	1	3/14/2023 5:38:21 PM
Ethylbenzene	ND	0.046		mg/Kg	1	3/14/2023 5:38:21 PM
Xylenes, Total	ND	0.092		mg/Kg	1	3/14/2023 5:38:21 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	3/14/2023 5:38:21 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	71	60		mg/Kg	20	3/14/2023 7:01:40 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 4'
Project: SDE 31 Federal 4
Collection Date: 3/8/2023 10:00:00 AM
Lab ID: 2303583-003 **Matrix:** SOIL
Received Date: 3/10/2023 7:30:00 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	3/14/2023 5:43:29 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/14/2023 5:43:29 PM
Surr: DNOP	95.4	69-147		%Rec	1	3/14/2023 5:43:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/14/2023 6:01:57 PM
Surr: BFB	103	37.7-212		%Rec	1	3/14/2023 6:01:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/14/2023 6:01:57 PM
Toluene	ND	0.048		mg/Kg	1	3/14/2023 6:01:57 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/14/2023 6:01:57 PM
Xylenes, Total	ND	0.096		mg/Kg	1	3/14/2023 6:01:57 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	3/14/2023 6:01:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1000	60		mg/Kg	20	3/14/2023 7:14:01 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-05 4'
Project: SDE 31 Federal 4 **Collection Date:** 3/8/2023 10:15:00 AM
Lab ID: 2303583-004 **Matrix:** SOIL **Received Date:** 3/10/2023 7:30:00 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	3/14/2023 6:07:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/14/2023 6:07:52 PM
Surr: DNOP	88.9	69-147		%Rec	1	3/14/2023 6:07:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/14/2023 6:25:27 PM
Surr: BFB	104	37.7-212		%Rec	1	3/14/2023 6:25:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/14/2023 6:25:27 PM
Toluene	ND	0.047		mg/Kg	1	3/14/2023 6:25:27 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/14/2023 6:25:27 PM
Xylenes, Total	ND	0.095		mg/Kg	1	3/14/2023 6:25:27 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	3/14/2023 6:25:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	3500	150		mg/Kg	50	3/15/2023 11:56:59 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 5'
Project: SDE 31 Federal 4
Collection Date: 3/8/2023 10:30:00 AM
Lab ID: 2303583-005 **Matrix:** SOIL
Received Date: 3/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	150	10		mg/Kg	1	3/14/2023 6:56:35 PM
Motor Oil Range Organics (MRO)	120	50		mg/Kg	1	3/14/2023 6:56:35 PM
Surr: DNOP	118	69-147		%Rec	1	3/14/2023 6:56:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/14/2023 6:49:02 PM
Surr: BFB	104	37.7-212		%Rec	1	3/14/2023 6:49:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/14/2023 6:49:02 PM
Toluene	ND	0.049		mg/Kg	1	3/14/2023 6:49:02 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/14/2023 6:49:02 PM
Xylenes, Total	ND	0.098		mg/Kg	1	3/14/2023 6:49:02 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	3/14/2023 6:49:02 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	3300	150		mg/Kg	50	3/15/2023 12:09:20 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 **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-06 4'
Project: SDE 31 Federal 4
Collection Date: 3/8/2023 10:45:00 AM
Lab ID: 2303583-006 **Matrix:** SOIL
Received Date: 3/10/2023 7:30:00 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	3/14/2023 7:45:16 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/14/2023 7:45:16 PM
Surr: DNOP	126	69-147		%Rec	1	3/14/2023 7:45:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/14/2023 7:12:32 PM
Surr: BFB	103	37.7-212		%Rec	1	3/14/2023 7:12:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/14/2023 7:12:32 PM
Toluene	ND	0.047		mg/Kg	1	3/14/2023 7:12:32 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/14/2023 7:12:32 PM
Xylenes, Total	ND	0.094		mg/Kg	1	3/14/2023 7:12:32 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	3/14/2023 7:12:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	110	60		mg/Kg	20	3/14/2023 8:40:28 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2303583**
Date Reported: **3/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 5'
Project: SDE 31 Federal 4
Collection Date: 3/8/2023 11:00:00 AM
Lab ID: 2303583-007 **Matrix:** SOIL
Received Date: 3/10/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	3/14/2023 8:09:43 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/14/2023 8:09:43 PM
Surr: DNOP	99.5	69-147		%Rec	1	3/14/2023 8:09:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/14/2023 7:36:05 PM
Surr: BFB	104	37.7-212		%Rec	1	3/14/2023 7:36:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	3/14/2023 7:36:05 PM
Toluene	ND	0.046		mg/Kg	1	3/14/2023 7:36:05 PM
Ethylbenzene	ND	0.046		mg/Kg	1	3/14/2023 7:36:05 PM
Xylenes, Total	ND	0.092		mg/Kg	1	3/14/2023 7:36:05 PM
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	3/14/2023 7:36:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	810	60		mg/Kg	20	3/14/2023 8:52:49 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2303583**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **MB-73698**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **73698**	RunNo: **95280**
Prep Date: **3/14/2023**	Analysis Date: **3/14/2023**	SeqNo: **3446161** Units: **mg/Kg**

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

Sample ID: **LCS-73698**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **73698**	RunNo: **95280**
Prep Date: **3/14/2023**	Analysis Date: **3/14/2023**	SeqNo: **3446162** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2303583**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **MB-73676**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **73676**	RunNo: **95253**
Prep Date: **3/13/2023**	Analysis Date: **3/14/2023**	SeqNo: **3445056** 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		121	69	147			

Sample ID: **LCS-73676**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **73676**	RunNo: **95253**
Prep Date: **3/13/2023**	Analysis Date: **3/14/2023**	SeqNo: **3445072** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.5	61.9	130			
Surr: DNOP	5.0		5.000		99.1	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#: **2303583**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **lcs-73671**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **73671**	RunNo: **95254**
Prep Date: **3/13/2023**	Analysis Date: **3/14/2023**	SeqNo: **3445081** 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	101	70	130			
Surr: BFB	2100		1000		208	37.7	212			

Sample ID: **mb-73671**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **73671**	RunNo: **95254**
Prep Date: **3/13/2023**	Analysis Date: **3/14/2023**	SeqNo: **3445082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		110	37.7	212			

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#: **2303583**

17-Mar-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 4

Sample ID: **LCS-73671**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **73671**	RunNo: **95254**
Prep Date: **3/13/2023**	Analysis Date: **3/14/2023**	SeqNo: **3445087** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.0	80	120			
Toluene	0.94	0.050	1.000	0	94.4	80	120			
Ethylbenzene	0.94	0.050	1.000	0	93.7	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.4	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	70	130			

Sample ID: **mb-73671**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **73671**	RunNo: **95254**
Prep Date: **3/13/2023**	Analysis Date: **3/14/2023**	SeqNo: **3445088** 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		105	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: 2303583

RcptNo: 1

Received By: Tracy Casarrubias 3/10/2023 7:30:00 AM

Completed By: Tracy Casarrubias 3/10/2023 7:44:19 AM

Reviewed By: KDA 3.10.23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: JM 3/10/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.0	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☒ Rush 5 Day

Project Name: SDE 31 Federal 4

Project #: 21E-02816-34

Project Manager: Kent Stallings

Sampler:

On Ice: ☒ Yes ☐ No yogi

# of Coolers: 1

Cooler Temp (Including CF): 5.0-0=5.0 (°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. 2303583	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)
3-8-23	9:30	soil	BH23-07 0'	1jar:4oz	ice	001										
	9:45		BH23-07 2'			002										
	10:00		BH23-03 4'			003										
	10:15		BH23-05 4'			004										
	10:30		BH23-05 5'			005										
	10:45		BH23-06 4'			006										
	11:00		BH23-03 5'			007										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3-8-23	1600	Zach Englebert			3/9/23	845
3-9-23	1900			courier	3/10/23	7:30

Remarks: Direct Bill to Devon

Devon / Harvard

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

July 17, 2023

Kent Stallings

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

RE: SDE 31 Federal 004 OrderNo.: 2307350

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 7/11/2023 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 8:15:00 AM
Lab ID: 2307350-001 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	700	9.5		mg/Kg	1	7/11/2023 6:10:46 PM
Motor Oil Range Organics (MRO)	630	47		mg/Kg	1	7/11/2023 6:10:46 PM
Surr: DNOP	92.1	69-147		%Rec	1	7/11/2023 6:10:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2023 11:01:00 AM
Surr: BFB	99.2	15-244		%Rec	1	7/12/2023 11:01:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 11:01:00 AM
Toluene	ND	0.049		mg/Kg	1	7/12/2023 11:01:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2023 11:01:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2023 11:01:00 AM
Surr: 4-Bromofluorobenzene	96.7	39.1-146		%Rec	1	7/12/2023 11:01:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	820	60		mg/Kg	20	7/12/2023 11:20:02 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 8:30:00 AM
Lab ID: 2307350-002 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	440	9.9		mg/Kg	1	7/11/2023 8:15:30 PM
Motor Oil Range Organics (MRO)	330	49		mg/Kg	1	7/11/2023 8:15:30 PM
Surr: DNOP	82.7	69-147		%Rec	1	7/11/2023 8:15:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/12/2023 12:07:00 PM
Surr: BFB	100	15-244		%Rec	1	7/12/2023 12:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 12:07:00 PM
Toluene	ND	0.050		mg/Kg	1	7/12/2023 12:07:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/12/2023 12:07:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2023 12:07:00 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	7/12/2023 12:07:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1200	60		mg/Kg	20	7/12/2023 12:22:05 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 8:40:00 AM
Lab ID: 2307350-003 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/11/2023 8:56:49 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/11/2023 8:56:49 PM
Surr: DNOP	93.0	69-147		%Rec	1	7/11/2023 8:56:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/12/2023 1:12:00 PM
Surr: BFB	101	15-244		%Rec	1	7/12/2023 1:12:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 1:12:00 PM
Toluene	ND	0.050		mg/Kg	1	7/12/2023 1:12:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/12/2023 1:12:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/12/2023 1:12:00 PM
Surr: 4-Bromofluorobenzene	98.3	39.1-146		%Rec	1	7/12/2023 1:12:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1900	150		mg/Kg	50	7/13/2023 10:31:32 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 9:05:00 AM
Lab ID: 2307350-004 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	220	9.9		mg/Kg	1	7/11/2023 9:07:40 PM
Motor Oil Range Organics (MRO)	220	50		mg/Kg	1	7/11/2023 9:07:40 PM
Surr: DNOP	87.3	69-147		%Rec	1	7/11/2023 9:07:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2023 1:34:00 PM
Surr: BFB	101	15-244		%Rec	1	7/12/2023 1:34:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/12/2023 1:34:00 PM
Toluene	ND	0.049		mg/Kg	1	7/12/2023 1:34:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2023 1:34:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/12/2023 1:34:00 PM
Surr: 4-Bromofluorobenzene	96.4	39.1-146		%Rec	1	7/12/2023 1:34:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1700	59		mg/Kg	20	7/12/2023 1:11:43 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 9:20:00 AM
Lab ID: 2307350-005 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	7/11/2023 9:48:58 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/11/2023 9:48:58 PM
Surr: DNOP	93.4	69-147		%Rec	1	7/11/2023 9:48:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2023 1:56:00 PM
Surr: BFB	100	15-244		%Rec	1	7/12/2023 1:56:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 1:56:00 PM
Toluene	ND	0.049		mg/Kg	1	7/12/2023 1:56:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2023 1:56:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/12/2023 1:56:00 PM
Surr: 4-Bromofluorobenzene	97.5	39.1-146		%Rec	1	7/12/2023 1:56:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	600	60		mg/Kg	20	7/12/2023 1:24:07 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 9:30:00 AM
Lab ID: 2307350-006 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/11/2023 10:10:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/11/2023 10:10:51 PM
Surr: DNOP	90.6	69-147		%Rec	1	7/11/2023 10:10:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/12/2023 2:18:00 PM
Surr: BFB	98.8	15-244		%Rec	1	7/12/2023 2:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 2:18:00 PM
Toluene	ND	0.050		mg/Kg	1	7/12/2023 2:18:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/12/2023 2:18:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2023 2:18:00 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	7/12/2023 2:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	130	60		mg/Kg	20	7/12/2023 1:36:31 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 9:50:00 AM
Lab ID: 2307350-007 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	21000	380		mg/Kg	40	7/12/2023 12:28:07 PM
Motor Oil Range Organics (MRO)	7400	1900		mg/Kg	40	7/12/2023 12:28:07 PM
Surr: DNOP	0	69-147	S	%Rec	40	7/12/2023 12:28:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	15	4.9		mg/Kg	1	7/12/2023 2:40:00 PM
Surr: BFB	139	15-244		%Rec	1	7/12/2023 2:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 2:40:00 PM
Toluene	ND	0.049		mg/Kg	1	7/12/2023 2:40:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2023 2:40:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2023 2:40:00 PM
Surr: 4-Bromofluorobenzene	118	39.1-146		%Rec	1	7/12/2023 2:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	180	60		mg/Kg	20	7/12/2023 1:48:56 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 10:00:00 AM
Lab ID: 2307350-008 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	990	46		mg/Kg	5	7/14/2023 9:02:02 AM
Motor Oil Range Organics (MRO)	560	230		mg/Kg	5	7/14/2023 9:02:02 AM
Surr: DNOP	70.1	69-147		%Rec	5	7/14/2023 9:02:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	24		mg/Kg	5	7/12/2023 3:02:00 PM
Surr: BFB	133	15-244		%Rec	5	7/12/2023 3:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.12		mg/Kg	5	7/12/2023 3:02:00 PM
Toluene	ND	0.24		mg/Kg	5	7/12/2023 3:02:00 PM
Ethylbenzene	ND	0.24		mg/Kg	5	7/12/2023 3:02:00 PM
Xylenes, Total	ND	0.48		mg/Kg	5	7/12/2023 3:02:00 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	5	7/12/2023 3:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	7/12/2023 2:01:21 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 10:10:00 AM
Lab ID: 2307350-009 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/11/2023 11:45:38 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/11/2023 11:45:38 PM
Surr: DNOP	91.8	69-147		%Rec	1	7/11/2023 11:45:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2023 3:24:00 PM
Surr: BFB	101	15-244		%Rec	1	7/12/2023 3:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/12/2023 3:24:00 PM
Toluene	ND	0.049		mg/Kg	1	7/12/2023 3:24:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2023 3:24:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/12/2023 3:24:00 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	7/12/2023 3:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	66	60		mg/Kg	20	7/12/2023 2:13:46 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 10:35:00 AM
Lab ID: 2307350-010 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	9400	98		mg/Kg	10	7/12/2023 10:38:06 AM
Motor Oil Range Organics (MRO)	3000	490		mg/Kg	10	7/12/2023 10:38:06 AM
Surr: DNOP	0	69-147	S	%Rec	10	7/12/2023 10:38:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/12/2023 3:46:00 PM
Surr: BFB	104	15-244		%Rec	1	7/12/2023 3:46:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/12/2023 3:46:00 PM
Toluene	ND	0.048		mg/Kg	1	7/12/2023 3:46:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/12/2023 3:46:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/12/2023 3:46:00 PM
Surr: 4-Bromofluorobenzene	99.2	39.1-146		%Rec	1	7/12/2023 3:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	75	60		mg/Kg	20	7/12/2023 2:50:59 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 10:55:00 AM
Lab ID: 2307350-011 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/12/2023 12:38:18 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/12/2023 12:38:18 AM
Surr: DNOP	90.7	69-147		%Rec	1	7/12/2023 12:38:18 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2023 4:30:00 PM
Surr: BFB	96.4	15-244		%Rec	1	7/12/2023 4:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/12/2023 4:30:00 PM
Toluene	ND	0.049		mg/Kg	1	7/12/2023 4:30:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2023 4:30:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/12/2023 4:30:00 PM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	7/12/2023 4:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	59		mg/Kg	20	7/12/2023 3:03:24 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 **2307350**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 11:05:00 AM
Lab ID: 2307350-012 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/12/2023 12:49:12 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/12/2023 12:49:12 AM
Surr: DNOP	90.6	69-147		%Rec	1	7/12/2023 12:49:12 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/12/2023 4:51:00 PM
Surr: BFB	101	15-244		%Rec	1	7/12/2023 4:51:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/12/2023 4:51:00 PM
Toluene	ND	0.050		mg/Kg	1	7/12/2023 4:51:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/12/2023 4:51:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2023 4:51:00 PM
Surr: 4-Bromofluorobenzene	97.0	39.1-146		%Rec	1	7/12/2023 4:51:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	7/12/2023 3:15:49 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307350**

17-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76141**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **76141**	RunNo: **98155**
Prep Date: **7/12/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571682** Units: **mg/Kg**

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

Sample ID: **LCS-76141**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **76141**	RunNo: **98155**
Prep Date: **7/12/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571683** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307350**

17-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **2307350-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-08 0'**	Batch ID: **76122**	RunNo: **98123**
Prep Date: **7/11/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570531** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	760	9.5	47.53	704.3	114	54.2	135			
Surr: DNOP	3.8		4.753		80.0	69	147			

Sample ID: **2307350-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-08 0'**	Batch ID: **76122**	RunNo: **98123**
Prep Date: **7/11/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570532** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	810	10	50.00	704.3	215	54.2	135	6.76	29.2	S
Surr: DNOP	4.2		5.000		84.0	69	147	0	0	

Sample ID: **LCS-76085**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76085**	RunNo: **98123**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570553** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.8		5.000		116	69	147			

Sample ID: **LCS-76122**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76122**	RunNo: **98123**
Prep Date: **7/11/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570554** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.7	61.9	130			
Surr: DNOP	3.9		5.000		78.9	69	147			

Sample ID: **MB-76085**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76085**	RunNo: **98123**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570556** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		120	69	147			

Sample ID: **MB-76122**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76122**	RunNo: **98123**
Prep Date: **7/11/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570557** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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#: **2307350**

17-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76122**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76122**	RunNo: **98123**
Prep Date: **7/11/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570557** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.2		10.00		92.1	69	147			

Sample ID: **LCS-76160**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76160**	RunNo: **98169**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572216** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		110	69	147			

Sample ID: **LCS-76166**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76166**	RunNo: **98169**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572217** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		87.4	69	147			

Sample ID: **MB-76160**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76160**	RunNo: **98169**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572219** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		107	69	147			

Sample ID: **MB-76166**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76166**	RunNo: **98169**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572220** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.2		10.00		91.7	69	147			

Sample ID: **LCS-76168**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76168**	RunNo: **98169**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572752** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.0	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307350**

17-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76168**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76168**	RunNo: **98169**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572754** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.8		10.00		87.9	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#: **2307350**

17-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76111**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571221** 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	90.2	70	130			
Surr: BFB	2100		1000		207	15	244			

Sample ID: **mb-76111**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571222** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1000		97.1	15	244			

Sample ID: **2307350-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 0'**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571224** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.75	0	94.4	70	130			
Surr: BFB	2200		990.1		220	15	244			

Sample ID: **2307350-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 0'**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571225** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	24.80	0	88.2	70	130	6.59	20	
Surr: BFB	2200		992.1		217	15	244	0	0	

Sample ID: **lcs-76082**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76082**	RunNo: **98150**
Prep Date: **7/10/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571245** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		200	15	244			

Sample ID: **mb-76082**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76082**	RunNo: **98150**
Prep Date: **7/10/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571246** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	940		1000		94.4	15	244			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307350**

17-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76111**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571291** 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	93.5	70	130			
Toluene	0.94	0.050	1.000	0	94.0	70	130			
Ethylbenzene	0.94	0.050	1.000	0	94.2	70	130			
Xylenes, Total	2.8	0.10	3.000	0	94.1	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		98.7	39.1	146			

Sample ID: **mb-76111**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571292** 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	0.96		1.000		96.2	39.1	146			

Sample ID: **2307350-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-08 2'**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571295** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9921	0	104	70	130			
Toluene	1.0	0.050	0.9921	0	105	70	130			
Ethylbenzene	1.1	0.050	0.9921	0	107	70	130			
Xylenes, Total	3.2	0.099	2.976	0	107	70	130			
Surr: 4-Bromofluorobenzene	0.97		0.9921		98.0	39.1	146			

Sample ID: **2307350-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-08 2'**	Batch ID: **76111**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571296** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	0.9862	0	100	70	130	4.41	20	
Toluene	1.0	0.049	0.9862	0	102	70	130	3.87	20	
Ethylbenzene	1.0	0.049	0.9862	0	102	70	130	5.14	20	
Xylenes, Total	3.0	0.099	2.959	0	102	70	130	5.10	20	
Surr: 4-Bromofluorobenzene	0.98		0.9862		99.2	39.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: 2307350

RcptNo: 1

Received By: Cheyenne Cason 7/11/2023 9:10:00 AM

Completed By: Cheyenne Cason 7/11/2023 9:43:29 AM

Reviewed By: TMC 7/11/23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: SCM 07/11/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.0	Good	Not Present	Yogi		
2	3.3	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon-Harvard Divest, see Remarks)

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** **48-hour**

Project Name:

SDE 31 Federal 004

Project #:

22E-02816-34

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☒ Yes ☐ No Yogi

# of Coolers: 2 0.1 - 0.1 = 0.0

Cooler Temp(including CF): 3.4 - 0.1 = 3.3

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. 2307350	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)
07/09/23	08:15	Soil	BH23-08 0'	1, 4oz jar		001	X	X					X			
07/09/23	08:30	Soil	BH23-08 2'	1, 4oz jar		002	X	X					X			
07/09/23	08:40	Soil	BH23-08 4'	1, 4oz jar		003	X	X					X			
07/09/23	09:05	Soil	BH23-09 0"	1, 4oz jar		004	X	X					X			
07/09/23	09:20	Soil	BH23-09 2'	1, 4oz jar		005	X	X					X			
07/09/23	09:30	Soil	BH23-09 4'	1, 4oz jar		006	X	X					X			
07/09/23	09:50	Soil	BH23-10 0"	1, 4oz jar		007	X	X					X			
07/09/23	10:00	Soil	BH23-10 2'	1, 4oz jar		008	X	X					X			
07/09/23	10:10	Soil	BH23-10 4'	1, 4oz jar		009	X	X					X			
07/09/23	10:35	Soil	BH23-11 0"	1, 4oz jar		010	X	X					X			
07/09/23	10:55	Soil	BH23-11 2'	1, 4oz jar		011	X	X					X			
07/09/23	11:05	Soil	BH23-11 4'	1, 4oz jar		012	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
7-10-23	07:00	John Pullman				
7/10/23	1900				7/11/23	0910

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@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

July 18, 2023

Kent Stallings

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

RE: SDE 31 Federal 004 OrderNo.: 2307361

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/11/2023 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 **2307361**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09' 6'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 9:40:00 AM
Lab ID: 2307361-001 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/13/2023 4:01:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 4:01:21 AM
Surr: DNOP	82.6	69-147		%Rec	1	7/13/2023 4:01:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 4:18:00 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 4:18:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 4:18:00 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 4:18:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 4:18:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 4:18:00 PM
Surr: 4-Bromofluorobenzene	99.1	39.1-146		%Rec	1	7/13/2023 4:18:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	120	60		mg/Kg	20	7/12/2023 6:41:44 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical 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#: **2307361**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76147**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **76147**	RunNo: **98158**
Prep Date: **7/12/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571790** Units: **mg/Kg**

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

Sample ID: **LCS-76147**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **76147**	RunNo: **98158**
Prep Date: **7/12/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571791** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307361**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **LCS-76138** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76138** RunNo: **98153**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3571522** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.1	61.9	130			
Surr: DNOP	3.9		5.000		77.7	69	147			

Sample ID: **MB-76138** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76138** RunNo: **98153**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3571525** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.0		10.00		80.4	69	147			

Sample ID: **LCS-76160** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76160** RunNo: **98169**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572216** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		110	69	147			

Sample ID: **MB-76160** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76160** RunNo: **98169**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572219** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		107	69	147			

Sample ID: **LCS-76168** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/13/2023** SeqNo: **3572752** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.0	69	147			

Sample ID: **MB-76168** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/13/2023** SeqNo: **3572754** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.8		10.00		87.9	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#: **2307361**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76130**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571263** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.9	70	130			
Surr: BFB	2100		1000		210	15	244			

Sample ID: **mb-76130**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571264** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	950		1000		94.5	15	244			

Sample ID: **lcs-76155**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572761** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		216	15	244			

Sample ID: **mb-76155**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572762** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.3	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#: **2307361**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76130**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571315** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.6	70	130			
Toluene	0.95	0.050	1.000	0	95.1	70	130			
Ethylbenzene	0.95	0.050	1.000	0	95.2	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.0	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	39.1	146			

Sample ID: **mb-76130**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571316** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	39.1	146			

Sample ID: **lcs-76155**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572787** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99		1.000		99.4	39.1	146			

Sample ID: **mb-76155**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572788** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		98.2	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: 2307361

RcptNo: 1

Received By: Cheyenne Cason 7/11/2023 9:10:00 AM

Completed By: Cheyenne Cason 7/11/2023 10:14:37 AM

Reviewed By: 7/11/23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: SCM 07/11/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.0	Good	Not Present	Yogi		
2	3.3	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon-Harvard Divest, see Remarks)

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 48-hour**

Project Name:

SDE 31 Federal 004

Project #:

22E-02816-34

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☒ Yes ☐ No Avg:

# of Coolers: 2 0.1-0.1=0.0

Cooler Temp(including CF): 3.4-0.1=3.3

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. 2307361	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)
07/09/23	09:40	Soil	BH23-09 6'	1, 4oz jar		001	X	X					X			

Relinquished by:	Date	Time	Received by:	Via:	Date	Time
	7-10-23	07:00			7/10/23	700
	7/10/23	1900			7/11/23	0910

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@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

July 18, 2023

Kent Stallings

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

RE: SDE 31 Federal 004 OrderNo.: 2307362

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/11/2023 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 **2307362**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 6'
Project: SDE 31 Federal 004 **Collection Date:** 7/9/2023 11:10:00 AM
Lab ID: 2307362-001 **Matrix:** SOIL **Received Date:** 7/11/2023 9:10:00 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	7/13/2023 4:12:29 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 4:12:29 AM
Surr: DNOP	88.8	69-147		%Rec	1	7/13/2023 4:12:29 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 4:40:00 PM
Surr: BFB	99.6	15-244		%Rec	1	7/13/2023 4:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 4:40:00 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 4:40:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 4:40:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/13/2023 4:40:00 PM
Surr: 4-Bromofluorobenzene	98.6	39.1-146		%Rec	1	7/13/2023 4:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	7/12/2023 6:54:09 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307362**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76147**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **76147**	RunNo: **98158**
Prep Date: **7/12/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571790** Units: **mg/Kg**

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

Sample ID: **LCS-76147**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **76147**	RunNo: **98158**
Prep Date: **7/12/2023**	Analysis Date: **7/12/2023**	SeqNo: **3571791** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.5	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307362**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **LCS-76138** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76138** RunNo: **98153**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3571522** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.1	61.9	130			
Surr: DNOP	3.9		5.000		77.7	69	147			

Sample ID: **MB-76138** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76138** RunNo: **98153**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3571525** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.0		10.00		80.4	69	147			

Sample ID: **LCS-76160** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76160** RunNo: **98169**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572216** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.5		5.000		110	69	147			

Sample ID: **MB-76160** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76160** RunNo: **98169**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572219** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		107	69	147			

Sample ID: **LCS-76168** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/13/2023** SeqNo: **3572752** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.0	69	147			

Sample ID: **MB-76168** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/13/2023** SeqNo: **3572754** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.8		10.00		87.9	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#: **2307362**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76130**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571263** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.9	70	130			
Surr: BFB	2100		1000		210	15	244			

Sample ID: **mb-76130**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571264** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	950		1000		94.5	15	244			

Sample ID: **lcs-76155**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572761** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		216	15	244			

Sample ID: **mb-76155**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572762** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.3	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#: **2307362**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76130**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571315** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.025	1.000	0	94.6	70	130			
Toluene	0.95	0.050	1.000	0	95.1	70	130			
Ethylbenzene	0.95	0.050	1.000	0	95.2	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.0	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	39.1	146			

Sample ID: **mb-76130**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76130**	RunNo: **98150**
Prep Date: **7/11/2023**	Analysis Date: **7/13/2023**	SeqNo: **3571316** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	39.1	146			

Sample ID: **lcs-76155**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572787** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99		1.000		99.4	39.1	146			

Sample ID: **mb-76155**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572788** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		98.2	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: 2307362

RcptNo: 1

Received By: Cheyenne Cason 7/11/2023 9:10:00 AM

Completed By: Cheyenne Cason 7/11/2023 10:26:29 AM

Reviewed By: MB 7/11/23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: SCM 07/11/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.0	Good	Not Present	Yogi		
2	3.3	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: Vertex

(direct bill to Devon-Harvard Divest, see Remarks)

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 48-hour

Project Name: SDE 31 Federal 004

Project #: 22E-02816-34

Project Manager: Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☒ Yes ☐ No Yog:

# of Coolers: 2 0.1-0.1=0.0

Cooler Temp(including CF): 3.4-0.1=3.3

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. 2307362	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)					
07/09/23	11:10	Soil	BH23-11 6'	1, 4oz jar		001	X	X					X								

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7-10-23	07:00	[signature]	[signature]		7/10/23	7:00
7/10/23	1900	[signature]	[signature]	Cour	7/11/23	0910

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@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

July 18, 2023

Kent Stallings

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

RE: SDE 31 Federal 004 OrderNo.: 2307446

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 57 sample(s) on 7/12/2023 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 7:40:00 AM
Lab ID: 2307446-001 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	14000	200		mg/Kg	20	7/13/2023 1:12:24 PM
Motor Oil Range Organics (MRO)	7100	980		mg/Kg	20	7/13/2023 1:12:24 PM
Surr: DNOP	0	69-147	S	%Rec	20	7/13/2023 1:12:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	93	4.8		mg/Kg	1	7/13/2023 3:19:38 PM
Surr: BFB	569	15-244	S	%Rec	1	7/13/2023 3:19:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 3:19:38 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 3:19:38 PM
Ethylbenzene	0.052	0.048		mg/Kg	1	7/13/2023 3:19:38 PM
Xylenes, Total	0.65	0.097		mg/Kg	1	7/13/2023 3:19:38 PM
Surr: 4-Bromofluorobenzene	99.6	39.1-146		%Rec	1	7/13/2023 3:19:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	810	60		mg/Kg	20	7/13/2023 3:32:05 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 7:50:00 AM
Lab ID: 2307446-002 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	6800	200		mg/Kg	20	7/13/2023 1:53:48 PM
Motor Oil Range Organics (MRO)	2500	980		mg/Kg	20	7/13/2023 1:53:48 PM
Surr: DNOP	0	69-147	S	%Rec	20	7/13/2023 1:53:48 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	11	4.8		mg/Kg	1	7/14/2023 1:38:33 AM
Surr: BFB	195	15-244		%Rec	1	7/14/2023 1:38:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 1:38:33 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 1:38:33 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 1:38:33 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/14/2023 1:38:33 AM
Surr: 4-Bromofluorobenzene	80.9	39.1-146		%Rec	1	7/14/2023 1:38:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	750	61		mg/Kg	20	7/13/2023 3:44:30 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 7:55:00 AM
Lab ID: 2307446-003 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/13/2023 2:35:17 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/13/2023 2:35:17 PM
Surr: DNOP	104	69-147		%Rec	1	7/13/2023 2:35:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 4:07:30 PM
Surr: BFB	108	15-244		%Rec	1	7/13/2023 4:07:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 4:07:30 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 4:07:30 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 4:07:30 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/13/2023 4:07:30 PM
Surr: 4-Bromofluorobenzene	86.1	39.1-146		%Rec	1	7/13/2023 4:07:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	920	60		mg/Kg	20	7/13/2023 3:56:55 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 8:05:00 AM
Lab ID: 2307446-004 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/13/2023 5:27:19 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/13/2023 5:27:19 PM
Surr: DNOP	83.2	69-147		%Rec	1	7/13/2023 5:27:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 4:31:29 PM
Surr: BFB	102	15-244		%Rec	1	7/13/2023 4:31:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 4:31:29 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 4:31:29 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 4:31:29 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/13/2023 4:31:29 PM
Surr: 4-Bromofluorobenzene	82.5	39.1-146		%Rec	1	7/13/2023 4:31:29 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	100	60		mg/Kg	20	7/13/2023 4:09:19 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 8:15:00 AM
Lab ID: 2307446-005 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/13/2023 5:38:21 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 5:38:21 PM
Surr: DNOP	105	69-147		%Rec	1	7/13/2023 5:38:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 4:55:27 PM
Surr: BFB	101	15-244		%Rec	1	7/13/2023 4:55:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 4:55:27 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 4:55:27 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 4:55:27 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 4:55:27 PM
Surr: 4-Bromofluorobenzene	81.2	39.1-146		%Rec	1	7/13/2023 4:55:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/13/2023 4:21:44 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 8:25:00 AM
Lab ID: 2307446-006 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/13/2023 5:49:27 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/13/2023 5:49:27 PM
Surr: DNOP	117	69-147		%Rec	1	7/13/2023 5:49:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 5:19:25 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 5:19:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 5:19:25 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 5:19:25 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 5:19:25 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 5:19:25 PM
Surr: 4-Bromofluorobenzene	80.2	39.1-146		%Rec	1	7/13/2023 5:19:25 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/13/2023 4:34:08 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 8:35:00 AM
Lab ID: 2307446-007 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	620	9.7		mg/Kg	1	7/14/2023 11:38:35 AM
Motor Oil Range Organics (MRO)	480	49		mg/Kg	1	7/14/2023 11:38:35 AM
Surr: DNOP	92.5	69-147		%Rec	1	7/14/2023 11:38:35 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 6:07:20 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 6:07:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 6:07:20 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 6:07:20 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 6:07:20 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 6:07:20 PM
Surr: 4-Bromofluorobenzene	80.5	39.1-146		%Rec	1	7/13/2023 6:07:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	18000	600		mg/Kg	200	7/14/2023 3:09:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 8:45:00 AM
Lab ID: 2307446-008 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	1600	190		mg/Kg	20	7/13/2023 6:11:32 PM
Motor Oil Range Organics (MRO)	1700	950		mg/Kg	20	7/13/2023 6:11:32 PM
Surr: DNOP	0	69-147	S	%Rec	20	7/13/2023 6:11:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 6:31:15 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 6:31:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 6:31:15 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 6:31:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 6:31:15 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 6:31:15 PM
Surr: 4-Bromofluorobenzene	80.5	39.1-146		%Rec	1	7/13/2023 6:31:15 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	5800	300		mg/Kg	100	7/14/2023 2:44:10 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:25:00 AM
Lab ID: 2307446-009 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	120	10		mg/Kg	1	7/14/2023 12:19:24 PM
Motor Oil Range Organics (MRO)	120	50		mg/Kg	1	7/14/2023 12:19:24 PM
Surr: DNOP	109	69-147		%Rec	1	7/14/2023 12:19:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 6:55:08 PM
Surr: BFB	101	15-244		%Rec	1	7/13/2023 6:55:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 6:55:08 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 6:55:08 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 6:55:08 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 6:55:08 PM
Surr: 4-Bromofluorobenzene	82.3	39.1-146		%Rec	1	7/13/2023 6:55:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	4900	150		mg/Kg	50	7/14/2023 2:06:57 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-15 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:35:00 AM
Lab ID: 2307446-010 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	55	9.5		mg/Kg	1	7/13/2023 7:04:11 PM
Motor Oil Range Organics (MRO)	78	48		mg/Kg	1	7/13/2023 7:04:11 PM
Surr: DNOP	118	69-147		%Rec	1	7/13/2023 7:04:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 7:18:59 PM
Surr: BFB	97.9	15-244		%Rec	1	7/13/2023 7:18:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 7:18:59 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 7:18:59 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 7:18:59 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 7:18:59 PM
Surr: 4-Bromofluorobenzene	79.2	39.1-146		%Rec	1	7/13/2023 7:18:59 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	21000	1500		mg/Kg	500	7/14/2023 3:33:49 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-15 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:50:00 AM
Lab ID: 2307446-011 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/13/2023 7:15:09 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 7:15:09 PM
Surr: DNOP	102	69-147		%Rec	1	7/13/2023 7:15:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 7:42:52 PM
Surr: BFB	103	15-244		%Rec	1	7/13/2023 7:42:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 7:42:52 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 7:42:52 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 7:42:52 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 7:42:52 PM
Surr: 4-Bromofluorobenzene	82.4	39.1-146		%Rec	1	7/13/2023 7:42:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	420	60		mg/Kg	20	7/13/2023 2:55:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-15 3'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 10:05:00 AM
Lab ID: 2307446-012 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	11	9.5		mg/Kg	1	7/13/2023 7:26:04 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/13/2023 7:26:04 PM
Surr: DNOP	102	69-147		%Rec	1	7/13/2023 7:26:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 8:06:40 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 8:06:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 8:06:40 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 8:06:40 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 8:06:40 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 8:06:40 PM
Surr: 4-Bromofluorobenzene	80.8	39.1-146		%Rec	1	7/13/2023 8:06:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1700	60		mg/Kg	20	7/13/2023 3:07:51 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-16 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:30:00 AM
Lab ID: 2307446-013 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	170	10		mg/Kg	1	7/14/2023 12:30:02 PM
Motor Oil Range Organics (MRO)	150	50		mg/Kg	1	7/14/2023 12:30:02 PM
Surr: DNOP	114	69-147		%Rec	1	7/14/2023 12:30:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 8:30:28 PM
Surr: BFB	97.8	15-244		%Rec	1	7/13/2023 8:30:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 8:30:28 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 8:30:28 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 8:30:28 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/13/2023 8:30:28 PM
Surr: 4-Bromofluorobenzene	78.2	39.1-146		%Rec	1	7/13/2023 8:30:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	9900	590		mg/Kg	200	7/14/2023 3:21:25 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-16 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:35:00 AM
Lab ID: 2307446-014 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/13/2023 7:47:58 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 7:47:58 PM
Surr: DNOP	103	69-147		%Rec	1	7/13/2023 7:47:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 8:54:21 PM
Surr: BFB	99.3	15-244		%Rec	1	7/13/2023 8:54:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 8:54:21 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 8:54:21 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 8:54:21 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 8:54:21 PM
Surr: 4-Bromofluorobenzene	79.8	39.1-146		%Rec	1	7/13/2023 8:54:21 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	520	60		mg/Kg	20	7/13/2023 3:57:30 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-16 4'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:40:00 AM
Lab ID: 2307446-015 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/13/2023 8:09:36 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 8:09:36 PM
Surr: DNOP	109	69-147		%Rec	1	7/13/2023 8:09:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 9:18:09 PM
Surr: BFB	98.6	15-244		%Rec	1	7/13/2023 9:18:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 9:18:09 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 9:18:09 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 9:18:09 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 9:18:09 PM
Surr: 4-Bromofluorobenzene	79.6	39.1-146		%Rec	1	7/13/2023 9:18:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	2300	60		mg/Kg	20	7/13/2023 4:09:54 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-17 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:45:00 AM
Lab ID: 2307446-016 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/13/2023 8:20:30 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 8:20:30 PM
Surr: DNOP	86.2	69-147		%Rec	1	7/13/2023 8:20:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 9:41:55 PM
Surr: BFB	99.0	15-244		%Rec	1	7/13/2023 9:41:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 9:41:55 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 9:41:55 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 9:41:55 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 9:41:55 PM
Surr: 4-Bromofluorobenzene	80.8	39.1-146		%Rec	1	7/13/2023 9:41:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	2300	60		mg/Kg	20	7/13/2023 4:22:19 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-17 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 9:50:00 AM
Lab ID: 2307446-017 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/13/2023 8:31:21 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 8:31:21 PM
Surr: DNOP	87.2	69-147		%Rec	1	7/13/2023 8:31:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 10:53:05 PM
Surr: BFB	98.0	15-244		%Rec	1	7/13/2023 10:53:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 10:53:05 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 10:53:05 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 10:53:05 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 10:53:05 PM
Surr: 4-Bromofluorobenzene	80.5	39.1-146		%Rec	1	7/13/2023 10:53:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	2100	150		mg/Kg	50	7/14/2023 2:19:21 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-18 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 10:25:00 AM
Lab ID: 2307446-018 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	720	20		mg/Kg	2	7/14/2023 12:51:21 PM
Motor Oil Range Organics (MRO)	370	98		mg/Kg	2	7/14/2023 12:51:21 PM
Surr: DNOP	114	69-147		%Rec	2	7/14/2023 12:51:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/13/2023 11:16:45 PM
Surr: BFB	94.1	15-244		%Rec	1	7/13/2023 11:16:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/13/2023 11:16:45 PM
Toluene	ND	0.048		mg/Kg	1	7/13/2023 11:16:45 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/13/2023 11:16:45 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/13/2023 11:16:45 PM
Surr: 4-Bromofluorobenzene	76.2	39.1-146		%Rec	1	7/13/2023 11:16:45 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1700	60		mg/Kg	20	7/13/2023 4:47:08 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 10:30:00 AM
Lab ID: 2307446-019 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/13/2023 8:53:03 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/13/2023 8:53:03 PM
Surr: DNOP	114	69-147		%Rec	1	7/13/2023 8:53:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 11:40:27 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 11:40:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 11:40:27 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 11:40:27 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 11:40:27 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/13/2023 11:40:27 PM
Surr: 4-Bromofluorobenzene	78.9	39.1-146		%Rec	1	7/13/2023 11:40:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	170	60		mg/Kg	20	7/13/2023 4:59:33 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-19 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 10:00:00 AM
Lab ID: 2307446-020 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/13/2023 9:03:55 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 9:03:55 PM
Surr: DNOP	123	69-147		%Rec	1	7/13/2023 9:03:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 12:04:05 AM
Surr: BFB	95.9	15-244		%Rec	1	7/14/2023 12:04:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 12:04:05 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 12:04:05 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 12:04:05 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/14/2023 12:04:05 AM
Surr: 4-Bromofluorobenzene	78.1	39.1-146		%Rec	1	7/14/2023 12:04:05 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	7/13/2023 5:11:57 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-19 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 10:05:00 AM
Lab ID: 2307446-021 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/13/2023 9:36:11 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/13/2023 9:36:11 PM
Surr: DNOP	97.7	69-147		%Rec	1	7/13/2023 9:36:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 7:58:00 PM
Surr: BFB	96.8	15-244		%Rec	1	7/13/2023 7:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 7:58:00 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 7:58:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 7:58:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 7:58:00 PM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	7/13/2023 7:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	160	61		mg/Kg	20	7/13/2023 5:24:21 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-20 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 10:45:00 AM
Lab ID: 2307446-022 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/14/2023 1:32:26 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 1:32:26 PM
Surr: DNOP	94.0	69-147		%Rec	1	7/14/2023 1:32:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 9:04:00 PM
Surr: BFB	100	15-244		%Rec	1	7/13/2023 9:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 9:04:00 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 9:04:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 9:04:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 9:04:00 PM
Surr: 4-Bromofluorobenzene	96.8	39.1-146		%Rec	1	7/13/2023 9:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	160	61		mg/Kg	20	7/13/2023 5:36:46 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-20 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 10:50:00 AM
Lab ID: 2307446-023 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/13/2023 9:57:57 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/13/2023 9:57:57 PM
Surr: DNOP	95.2	69-147		%Rec	1	7/13/2023 9:57:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 10:31:00 PM
Surr: BFB	96.2	15-244		%Rec	1	7/13/2023 10:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 10:31:00 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 10:31:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 10:31:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/13/2023 10:31:00 PM
Surr: 4-Bromofluorobenzene	94.9	39.1-146		%Rec	1	7/13/2023 10:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	410	60		mg/Kg	20	7/13/2023 6:14:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-21 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 10:30:00 AM
Lab ID: 2307446-024 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/13/2023 10:08:53 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/13/2023 10:08:53 PM
Surr: DNOP	107	69-147		%Rec	1	7/13/2023 10:08:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 10:53:00 PM
Surr: BFB	94.8	15-244		%Rec	1	7/13/2023 10:53:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 10:53:00 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 10:53:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 10:53:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 10:53:00 PM
Surr: 4-Bromofluorobenzene	94.4	39.1-146		%Rec	1	7/13/2023 10:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	220	60		mg/Kg	20	7/13/2023 6:26:24 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-21 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 10:40:00 AM
Lab ID: 2307446-025 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/13/2023 10:19:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 10:19:54 PM
Surr: DNOP	95.5	69-147		%Rec	1	7/13/2023 10:19:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 11:15:00 PM
Surr: BFB	96.7	15-244		%Rec	1	7/13/2023 11:15:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 11:15:00 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 11:15:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 11:15:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/13/2023 11:15:00 PM
Surr: 4-Bromofluorobenzene	95.3	39.1-146		%Rec	1	7/13/2023 11:15:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	59		mg/Kg	20	7/13/2023 6:38:48 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-22 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:00:00 AM
Lab ID: 2307446-026 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/13/2023 10:31:03 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 10:31:03 PM
Surr: DNOP	96.6	69-147		%Rec	1	7/13/2023 10:31:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2023 11:37:00 PM
Surr: BFB	95.0	15-244		%Rec	1	7/13/2023 11:37:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 11:37:00 PM
Toluene	ND	0.049		mg/Kg	1	7/13/2023 11:37:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/13/2023 11:37:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/13/2023 11:37:00 PM
Surr: 4-Bromofluorobenzene	96.1	39.1-146		%Rec	1	7/13/2023 11:37:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	640	61		mg/Kg	20	7/13/2023 6:51:13 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-22 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:10:00 AM
Lab ID: 2307446-027 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/13/2023 10:42:12 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 10:42:12 PM
Surr: DNOP	91.9	69-147		%Rec	1	7/13/2023 10:42:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/13/2023 11:59:00 PM
Surr: BFB	96.6	15-244		%Rec	1	7/13/2023 11:59:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/13/2023 11:59:00 PM
Toluene	ND	0.050		mg/Kg	1	7/13/2023 11:59:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/13/2023 11:59:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/13/2023 11:59:00 PM
Surr: 4-Bromofluorobenzene	95.5	39.1-146		%Rec	1	7/13/2023 11:59:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	86	61		mg/Kg	20	7/13/2023 7:03:37 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-23 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 11:20:00 AM
Lab ID: 2307446-028 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/14/2023 1:43:11 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/14/2023 1:43:11 PM
Surr: DNOP	97.7	69-147		%Rec	1	7/14/2023 1:43:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 12:21:00 AM
Surr: BFB	93.5	15-244		%Rec	1	7/14/2023 12:21:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 12:21:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 12:21:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 12:21:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/14/2023 12:21:00 AM
Surr: 4-Bromofluorobenzene	94.7	39.1-146		%Rec	1	7/14/2023 12:21:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	8700	300		mg/Kg	100	7/14/2023 2:56:35 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-23 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:30:00 AM
Lab ID: 2307446-029 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/13/2023 11:15:16 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 11:15:16 PM
Surr: DNOP	90.7	69-147		%Rec	1	7/13/2023 11:15:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 12:42:00 AM
Surr: BFB	96.6	15-244		%Rec	1	7/14/2023 12:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 12:42:00 AM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 12:42:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 12:42:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	7/14/2023 12:42:00 AM
Surr: 4-Bromofluorobenzene	96.7	39.1-146		%Rec	1	7/14/2023 12:42:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	280	60		mg/Kg	20	7/13/2023 9:44:20 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-24 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 11:15:00 AM
Lab ID: 2307446-030 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	160	9.7		mg/Kg	1	7/14/2023 1:53:54 PM
Motor Oil Range Organics (MRO)	130	48		mg/Kg	1	7/14/2023 1:53:54 PM
Surr: DNOP	115	69-147		%Rec	1	7/14/2023 1:53:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 1:04:00 AM
Surr: BFB	96.5	15-244		%Rec	1	7/14/2023 1:04:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 1:04:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 1:04:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 1:04:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 1:04:00 AM
Surr: 4-Bromofluorobenzene	94.4	39.1-146		%Rec	1	7/14/2023 1:04:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	220	60		mg/Kg	20	7/13/2023 9:56:45 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-24 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:25:00 AM
Lab ID: 2307446-031 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/13/2023 11:37:24 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/13/2023 11:37:24 PM
Surr: DNOP	96.1	69-147		%Rec	1	7/13/2023 11:37:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 1:48:00 AM
Surr: BFB	96.1	15-244		%Rec	1	7/14/2023 1:48:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 1:48:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 1:48:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 1:48:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 1:48:00 AM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	7/14/2023 1:48:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	460	60		mg/Kg	20	7/13/2023 10:09:10 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-25 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:30:00 AM
Lab ID: 2307446-032 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/13/2023 11:48:26 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 11:48:26 PM
Surr: DNOP	97.1	69-147		%Rec	1	7/13/2023 11:48:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 2:10:00 AM
Surr: BFB	95.7	15-244		%Rec	1	7/14/2023 2:10:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 2:10:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 2:10:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 2:10:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 2:10:00 AM
Surr: 4-Bromofluorobenzene	94.3	39.1-146		%Rec	1	7/14/2023 2:10:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	440	60		mg/Kg	20	7/13/2023 10:21:35 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-25 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:40:00 AM
Lab ID: 2307446-033 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/13/2023 11:59:28 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/13/2023 11:59:28 PM
Surr: DNOP	96.8	69-147		%Rec	1	7/13/2023 11:59:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 2:31:00 AM
Surr: BFB	93.7	15-244		%Rec	1	7/14/2023 2:31:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 2:31:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 2:31:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 2:31:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 2:31:00 AM
Surr: 4-Bromofluorobenzene	94.4	39.1-146		%Rec	1	7/14/2023 2:31:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1000	61		mg/Kg	20	7/13/2023 10:58:49 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-26 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:40:00 AM
Lab ID: 2307446-034 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/14/2023 2:04:39 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/14/2023 2:04:39 PM
Surr: DNOP	95.8	69-147		%Rec	1	7/14/2023 2:04:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 2:53:00 AM
Surr: BFB	94.3	15-244		%Rec	1	7/14/2023 2:53:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 2:53:00 AM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 2:53:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 2:53:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 2:53:00 AM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	7/14/2023 2:53:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	280	60		mg/Kg	20	7/13/2023 11:11:14 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-26 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:45:00 AM
Lab ID: 2307446-035 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/14/2023 12:21:20 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 12:21:20 AM
Surr: DNOP	94.9	69-147		%Rec	1	7/14/2023 12:21:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 3:15:00 AM
Surr: BFB	91.5	15-244		%Rec	1	7/14/2023 3:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 3:15:00 AM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 3:15:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 3:15:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 3:15:00 AM
Surr: 4-Bromofluorobenzene	93.7	39.1-146		%Rec	1	7/14/2023 3:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	190	60		mg/Kg	20	7/13/2023 11:23:38 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-27 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 11:45:00 AM
Lab ID: 2307446-036 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/14/2023 2:15:24 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 2:15:24 PM
Surr: DNOP	93.7	69-147		%Rec	1	7/14/2023 2:15:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 3:37:00 AM
Surr: BFB	94.8	15-244		%Rec	1	7/14/2023 3:37:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 3:37:00 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 3:37:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 3:37:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 3:37:00 AM
Surr: 4-Bromofluorobenzene	95.6	39.1-146		%Rec	1	7/14/2023 3:37:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/13/2023 11:36:03 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-27 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 11:50:00 AM
Lab ID: 2307446-037 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/14/2023 12:43:11 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/14/2023 12:43:11 AM
Surr: DNOP	91.9	69-147		%Rec	1	7/14/2023 12:43:11 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 3:58:00 AM
Surr: BFB	96.0	15-244		%Rec	1	7/14/2023 3:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 3:58:00 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 3:58:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 3:58:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 3:58:00 AM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	7/14/2023 3:58:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/13/2023 11:48:27 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-28 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 11:55:00 AM
Lab ID: 2307446-038 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/14/2023 12:54:00 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 12:54:00 AM
Surr: DNOP	92.7	69-147		%Rec	1	7/14/2023 12:54:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 4:20:00 AM
Surr: BFB	93.5	15-244		%Rec	1	7/14/2023 4:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 4:20:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 4:20:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 4:20:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 4:20:00 AM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	7/14/2023 4:20:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	61		mg/Kg	20	7/14/2023 12:00:52 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-28 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 12:05:00 PM
Lab ID: 2307446-039 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/14/2023 1:04:49 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/14/2023 1:04:49 AM
Surr: DNOP	91.8	69-147		%Rec	1	7/14/2023 1:04:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 4:42:00 AM
Surr: BFB	94.8	15-244		%Rec	1	7/14/2023 4:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 4:42:00 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 4:42:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 4:42:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 4:42:00 AM
Surr: 4-Bromofluorobenzene	95.1	39.1-146		%Rec	1	7/14/2023 4:42:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 12:13:17 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-29 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:00:00 PM
Lab ID: 2307446-040 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	68	9.1		mg/Kg	1	7/14/2023 1:15:36 AM
Motor Oil Range Organics (MRO)	50	46		mg/Kg	1	7/14/2023 1:15:36 AM
Surr: DNOP	93.8	69-147		%Rec	1	7/14/2023 1:15:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 5:04:00 AM
Surr: BFB	93.9	15-244		%Rec	1	7/14/2023 5:04:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 5:04:00 AM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 5:04:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 5:04:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 5:04:00 AM
Surr: 4-Bromofluorobenzene	93.1	39.1-146		%Rec	1	7/14/2023 5:04:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	3100	150		mg/Kg	50	7/14/2023 2:31:45 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-29 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:10:00 PM
Lab ID: 2307446-041 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	53	9.9		mg/Kg	1	7/13/2023 7:30:31 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/13/2023 7:30:31 PM
Surr: DNOP	99.3	69-147		%Rec	1	7/13/2023 7:30:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 9:10:00 AM
Surr: BFB	94.1	15-244		%Rec	1	7/14/2023 9:10:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 9:10:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 9:10:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 9:10:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/14/2023 9:10:00 AM
Surr: 4-Bromofluorobenzene	95.9	39.1-146		%Rec	1	7/14/2023 9:10:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	150	60		mg/Kg	20	7/14/2023 12:38:06 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-30 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:10:00 PM
Lab ID: 2307446-042 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/13/2023 7:54:31 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/13/2023 7:54:31 PM
Surr: DNOP	99.1	69-147		%Rec	1	7/13/2023 7:54:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 9:32:00 AM
Surr: BFB	99.5	15-244		%Rec	1	7/14/2023 9:32:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 9:32:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 9:32:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 9:32:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 9:32:00 AM
Surr: 4-Bromofluorobenzene	97.1	39.1-146		%Rec	1	7/14/2023 9:32:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 12:50:31 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-30 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:20:00 PM
Lab ID: 2307446-043 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/13/2023 8:42:35 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/13/2023 8:42:35 PM
Surr: DNOP	98.0	69-147		%Rec	1	7/13/2023 8:42:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 9:53:00 AM
Surr: BFB	99.1	15-244		%Rec	1	7/14/2023 9:53:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 9:53:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 9:53:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 9:53:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 9:53:00 AM
Surr: 4-Bromofluorobenzene	99.1	39.1-146		%Rec	1	7/14/2023 9:53:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	86	60		mg/Kg	20	7/14/2023 1:52:33 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-31 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:25:00 PM
Lab ID: 2307446-044 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	67	9.9		mg/Kg	1	7/13/2023 9:54:35 PM
Motor Oil Range Organics (MRO)	82	49		mg/Kg	1	7/13/2023 9:54:35 PM
Surr: DNOP	99.2	69-147		%Rec	1	7/13/2023 9:54:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 10:15:00 AM
Surr: BFB	94.1	15-244		%Rec	1	7/14/2023 10:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 10:15:00 AM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 10:15:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 10:15:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/14/2023 10:15:00 AM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	7/14/2023 10:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	96	60		mg/Kg	20	7/14/2023 2:04:58 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-31 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:30:00 PM
Lab ID: 2307446-045 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/13/2023 10:42:40 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/13/2023 10:42:40 PM
Surr: DNOP	98.8	69-147		%Rec	1	7/13/2023 10:42:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/14/2023 10:37:00 AM
Surr: BFB	96.7	15-244		%Rec	1	7/14/2023 10:37:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/14/2023 10:37:00 AM
Toluene	ND	0.046		mg/Kg	1	7/14/2023 10:37:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	7/14/2023 10:37:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	7/14/2023 10:37:00 AM
Surr: 4-Bromofluorobenzene	96.6	39.1-146		%Rec	1	7/14/2023 10:37:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 2:17:23 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-32 0'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 1:30:00 PM
Lab ID: 2307446-046 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/13/2023 11:06:45 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 11:06:45 PM
Surr: DNOP	88.2	69-147		%Rec	1	7/13/2023 11:06:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 10:59:00 AM
Surr: BFB	100	15-244		%Rec	1	7/14/2023 10:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 10:59:00 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 10:59:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 10:59:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/14/2023 10:59:00 AM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	7/14/2023 10:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	74	60		mg/Kg	20	7/14/2023 2:29:47 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-32 2'
Project: SDE 31 Federal 004
Collection Date: 7/10/2023 1:35:00 PM
Lab ID: 2307446-047 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/13/2023 11:30:53 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/13/2023 11:30:53 PM
Surr: DNOP	97.9	69-147		%Rec	1	7/13/2023 11:30:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 11:20:00 AM
Surr: BFB	98.8	15-244		%Rec	1	7/14/2023 11:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 11:20:00 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 11:20:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 11:20:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/14/2023 11:20:00 AM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	7/14/2023 11:20:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 2:42:12 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-33 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:40:00 PM
Lab ID: 2307446-048 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	780	95		mg/Kg	10	7/13/2023 11:55:02 PM
Motor Oil Range Organics (MRO)	650	470		mg/Kg	10	7/13/2023 11:55:02 PM
Surr: DNOP	0	69-147	S	%Rec	10	7/13/2023 11:55:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 11:42:00 AM
Surr: BFB	95.8	15-244		%Rec	1	7/14/2023 11:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 11:42:00 AM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 11:42:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 11:42:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/14/2023 11:42:00 AM
Surr: 4-Bromofluorobenzene	96.7	39.1-146		%Rec	1	7/14/2023 11:42:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	790	60		mg/Kg	20	7/14/2023 2:54:37 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-33 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:45:00 PM
Lab ID: 2307446-049 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/14/2023 1:07:08 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/14/2023 1:07:08 AM
Surr: DNOP	102	69-147		%Rec	1	7/14/2023 1:07:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 12:04:00 PM
Surr: BFB	98.0	15-244		%Rec	1	7/14/2023 12:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 12:04:00 PM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 12:04:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 12:04:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/14/2023 12:04:00 PM
Surr: 4-Bromofluorobenzene	98.3	39.1-146		%Rec	1	7/14/2023 12:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 3:07:02 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-34 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:40:00 PM
Lab ID: 2307446-050 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	1400	96		mg/Kg	10	7/14/2023 1:31:08 AM
Motor Oil Range Organics (MRO)	960	480		mg/Kg	10	7/14/2023 1:31:08 AM
Surr: DNOP	0	69-147	S	%Rec	10	7/14/2023 1:31:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 12:26:00 PM
Surr: BFB	96.9	15-244		%Rec	1	7/14/2023 12:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 12:26:00 PM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 12:26:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 12:26:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 12:26:00 PM
Surr: 4-Bromofluorobenzene	97.6	39.1-146		%Rec	1	7/14/2023 12:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 3:19:26 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-34 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:45:00 PM
Lab ID: 2307446-051 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/14/2023 1:55:08 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 1:55:08 AM
Surr: DNOP	93.4	69-147		%Rec	1	7/14/2023 1:55:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/14/2023 1:09:00 PM
Surr: BFB	100	15-244		%Rec	1	7/14/2023 1:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/14/2023 1:09:00 PM
Toluene	ND	0.047		mg/Kg	1	7/14/2023 1:09:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/14/2023 1:09:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/14/2023 1:09:00 PM
Surr: 4-Bromofluorobenzene	99.6	39.1-146		%Rec	1	7/14/2023 1:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 3:56:39 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-35 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:50:00 PM
Lab ID: 2307446-052 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	3200	490		mg/Kg	50	7/14/2023 2:19:09 AM
Motor Oil Range Organics (MRO)	4000	2400		mg/Kg	50	7/14/2023 2:19:09 AM
Surr: DNOP	0	69-147	S	%Rec	50	7/14/2023 2:19:09 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/14/2023 1:31:00 PM
Surr: BFB	103	15-244		%Rec	1	7/14/2023 1:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/14/2023 1:31:00 PM
Toluene	ND	0.047		mg/Kg	1	7/14/2023 1:31:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/14/2023 1:31:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/14/2023 1:31:00 PM
Surr: 4-Bromofluorobenzene	98.4	39.1-146		%Rec	1	7/14/2023 1:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 4:09:04 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-35 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:55:00 PM
Lab ID: 2307446-053 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/14/2023 3:07:13 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 3:07:13 AM
Surr: DNOP	93.3	69-147		%Rec	1	7/14/2023 3:07:13 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 1:53:00 PM
Surr: BFB	102	15-244		%Rec	1	7/14/2023 1:53:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 1:53:00 PM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 1:53:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 1:53:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/14/2023 1:53:00 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	7/14/2023 1:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	200	60		mg/Kg	20	7/14/2023 4:21:29 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-36 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:50:00 PM
Lab ID: 2307446-054 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/14/2023 2:26:10 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 2:26:10 PM
Surr: DNOP	102	69-147		%Rec	1	7/14/2023 2:26:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 2:15:00 PM
Surr: BFB	104	15-244		%Rec	1	7/14/2023 2:15:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 2:15:00 PM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 2:15:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 2:15:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/14/2023 2:15:00 PM
Surr: 4-Bromofluorobenzene	99.2	39.1-146		%Rec	1	7/14/2023 2:15:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 4:33:53 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-36 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 1:55:00 PM
Lab ID: 2307446-055 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/14/2023 3:55:09 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 3:55:09 AM
Surr: DNOP	96.9	69-147		%Rec	1	7/14/2023 3:55:09 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 2:37:00 PM
Surr: BFB	103	15-244		%Rec	1	7/14/2023 2:37:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 2:37:00 PM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 2:37:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 2:37:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/14/2023 2:37:00 PM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	7/14/2023 2:37:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 4:46:18 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-37 0'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 2:00:00 PM
Lab ID: 2307446-056 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	23	9.3		mg/Kg	1	7/14/2023 4:19:04 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 4:19:04 AM
Surr: DNOP	93.4	69-147		%Rec	1	7/14/2023 4:19:04 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/14/2023 2:59:00 PM
Surr: BFB	102	15-244		%Rec	1	7/14/2023 2:59:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/14/2023 2:59:00 PM
Toluene	ND	0.046		mg/Kg	1	7/14/2023 2:59:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/14/2023 2:59:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	7/14/2023 2:59:00 PM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	7/14/2023 2:59:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	340	60		mg/Kg	20	7/14/2023 4:58:43 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 **2307446**
Date Reported: **7/18/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-37 2'
Project: SDE 31 Federal 004 **Collection Date:** 7/10/2023 2:15:00 PM
Lab ID: 2307446-057 **Matrix:** SOIL **Received Date:** 7/12/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/14/2023 5:30:30 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 5:30:30 AM
Surr: DNOP	94.4	69-147		%Rec	1	7/14/2023 5:30:30 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/14/2023 3:21:00 PM
Surr: BFB	100	15-244		%Rec	1	7/14/2023 3:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 3:21:00 PM
Toluene	ND	0.047		mg/Kg	1	7/14/2023 3:21:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/14/2023 3:21:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/14/2023 3:21:00 PM
Surr: 4-Bromofluorobenzene	99.4	39.1-146		%Rec	1	7/14/2023 3:21:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	7/14/2023 5:11:08 AM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76176**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76176**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573236**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76176**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76176**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573237**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

Sample ID: **MB-76191**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76191**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573270**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76191**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76191**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573272**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.6	90	110			

Sample ID: **2307335-001AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **BatchQC**	Batch ID: **76191**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573292**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	32	7.5	15.00	19.20	87.1	47.4	150			

Sample ID: **2307335-001AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **BatchQC**	Batch ID: **76191**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573293**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	32	7.5	15.00	19.20	83.6	44.8	154	1.66	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76202**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76202**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3573322**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76202**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76202**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3573323**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.9	90	110			

Sample ID: **MB-76182**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76182**	RunNo: **98181**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573428**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76182**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76182**	RunNo: **98181**								
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573429**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **LCS-76160** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76160** RunNo: **98169**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572216** 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	5.5		5.000		110	69	147			

Sample ID: **MB-76160** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **76160** RunNo: **98169**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572219** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	69	147			

Sample ID: **2307446-040AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-29 0'** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/14/2023** SeqNo: **3572748** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	140	9.5	47.62	67.86	146	54.2	135			S
Surr: DNOP	5.7		4.762		120	69	147			

Sample ID: **2307446-040AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-29 0'** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/14/2023** SeqNo: **3572749** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	72	9.6	48.12	67.86	9.55	54.2	135	61.8	29.2	RS
Surr: DNOP	4.9		4.812		101	69	147	0	0	

Sample ID: **LCS-76168** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **76168** RunNo: **98169**
Prep Date: **7/13/2023** Analysis Date: **7/13/2023** SeqNo: **3572752** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.5	61.9	130			
Surr: DNOP	4.3		5.000		85.0	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **MB-76168**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76168**	RunNo: **98169**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572754** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		87.9	69	147			

Sample ID: **2307446-020AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-19 0'**	Batch ID: **76160**	RunNo: **98169**
Prep Date: **7/12/2023**	Analysis Date: **7/14/2023**	SeqNo: **3572927** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	9.6	48.22	0	111	54.2	135			
Surr: DNOP	5.3		4.822		110	69	147			

Sample ID: **2307446-020AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-19 0'**	Batch ID: **76160**	RunNo: **98169**
Prep Date: **7/12/2023**	Analysis Date: **7/14/2023**	SeqNo: **3572928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.4	46.99	0	96.7	54.2	135	16.6	29.2	
Surr: DNOP	4.3		4.699		92.5	69	147	0	0	

Sample ID: **MB-76187**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76187**	RunNo: **98192**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573197** 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		93.6	69	147			

Sample ID: **LCS-76187**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76187**	RunNo: **98192**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573198** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.7	61.9	130			
Surr: DNOP	4.2		5.000		83.1	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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **2307446-043AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-30 2'**	Batch ID: **76187**	RunNo: **98192**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573202** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.9	49.31	0	92.2	54.2	135			
Surr: DNOP	4.4		4.931		90.0	69	147			

Sample ID: **2307446-043AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-30 2'**	Batch ID: **76187**	RunNo: **98192**
Prep Date: **7/13/2023**	Analysis Date: **7/13/2023**	SeqNo: **3573203** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	49.95	0	86.9	54.2	135	4.64	29.2	
Surr: DNOP	4.4		4.995		87.5	69	147	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **lcs-76148**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76148**	RunNo: **98173**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572253** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.7	70	130			
Surr: BFB	2000		1000		204	15	244			

Sample ID: **mb-76148**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76148**	RunNo: **98173**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572254** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		98.7	15	244			

Sample ID: **lcs-76155**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572761** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.0	70	130			
Surr: BFB	2200		1000		216	15	244			

Sample ID: **mb-76155**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572762** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		99.3	15	244			

Sample ID: **2307446-022ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-20 0'**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572765** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.9	24.39	0	83.7	70	130			
Surr: BFB	2100		975.6		213	15	244			

Sample ID: **2307446-022amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-20 0'**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572766** 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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **2307446-022amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-20 0'** Batch ID: **76155** RunNo: **98174**
Prep Date: **7/12/2023** Analysis Date: **7/13/2023** SeqNo: **3572766** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.51	0	85.6	70	130	2.76	20	
Surr: BFB	2200		980.4		227	15	244	0	0	

Sample ID: **2307446-001ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-12 0'** Batch ID: **76148** RunNo: **98173**
Prep Date: **7/12/2023** Analysis Date: **7/14/2023** SeqNo: **3572860** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	87	4.8	24.04	93.42	-27.5	70	130			S
Surr: BFB	5100		961.5		534	15	244			S

Sample ID: **2307446-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-12 0'** Batch ID: **76148** RunNo: **98173**
Prep Date: **7/12/2023** Analysis Date: **7/14/2023** SeqNo: **3572861** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	100	4.8	23.99	93.42	35.7	70	130	16.1	20	S
Surr: BFB	5600		959.7		585	15	244	0	0	S

Sample ID: **lcs-76167** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **76167** RunNo: **98207**
Prep Date: **7/13/2023** Analysis Date: **7/14/2023** SeqNo: **3573748** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.2	70	130			
Surr: BFB	2100		1000		209	15	244			

Sample ID: **mb-76167** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **76167** RunNo: **98207**
Prep Date: **7/13/2023** Analysis Date: **7/14/2023** SeqNo: **3573749** 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		99.6	15	244			

Sample ID: **2307446-041ams** SampType: **MS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-29 2'** Batch ID: **76167** RunNo: **98207**
Prep Date: **7/13/2023** Analysis Date: **7/14/2023** SeqNo: **3574134** 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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **2307446-041ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-29 2'**	Batch ID: **76167**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574134** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.70	0	106	70	130			
Surr: BFB	2300		988.1		237	15	244			

Sample ID: **2307446-041amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-29 2'**	Batch ID: **76167**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574135** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.73	0	104	70	130	1.58	20	
Surr: BFB	2300		989.1		229	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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **LCS-76148**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76148**	RunNo: **98173**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572257** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.025	1.000	0	79.0	70	130			
Toluene	0.79	0.050	1.000	0	79.0	70	130			
Ethylbenzene	0.81	0.050	1.000	0	81.2	70	130			
Xylenes, Total	2.4	0.10	3.000	0	81.5	70	130			
Surr: 4-Bromofluorobenzene	0.81		1.000		80.8	39.1	146			

Sample ID: **mb-76148**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76148**	RunNo: **98173**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572258** 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	0.82		1.000		81.7	39.1	146			

Sample ID: **lcs-76155**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.5	70	130			
Toluene	0.94	0.050	1.000	0	94.0	70	130			
Ethylbenzene	0.96	0.050	1.000	0	95.5	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.2	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.4	39.1	146			

Sample ID: **mb-76155**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572788** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		98.2	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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **2307446-021amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-19 2'**	Batch ID: **76155**	RunNo: **98174**
Prep Date: **7/12/2023**	Analysis Date: **7/13/2023**	SeqNo: **3572791** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	0.9891	0	100	70	130	36.1	20	R
Toluene	1.0	0.049	0.9891	0	102	70	130	37.4	20	R
Ethylbenzene	1.0	0.049	0.9891	0	105	70	130	40.8	20	R
Xylenes, Total	3.1	0.099	2.967	0	104	70	130	40.9	20	R
Surr: 4-Bromofluorobenzene	0.97		0.9891		98.5	39.1	146	0	0	

Sample ID: **2307446-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-12 2'**	Batch ID: **76148**	RunNo: **98173**
Prep Date: **7/12/2023**	Analysis Date: **7/14/2023**	SeqNo: **3572887** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.73	0.024	0.9653	0	75.3	70	130			
Toluene	0.76	0.048	0.9653	0.02144	76.3	70	130			
Ethylbenzene	0.76	0.048	0.9653	0.01933	76.3	70	130			
Xylenes, Total	2.2	0.097	2.896	0.1503	71.1	70	130			
Surr: 4-Bromofluorobenzene	0.79		0.9653		82.0	39.1	146			

Sample ID: **2307446-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-12 2'**	Batch ID: **76148**	RunNo: **98173**
Prep Date: **7/12/2023**	Analysis Date: **7/14/2023**	SeqNo: **3572888** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.75	0.024	0.9681	0	77.8	70	130	3.58	20	
Toluene	0.78	0.048	0.9681	0.02144	77.8	70	130	2.28	20	
Ethylbenzene	0.77	0.048	0.9681	0.01933	77.9	70	130	2.36	20	
Xylenes, Total	2.3	0.097	2.904	0.1503	73.1	70	130	2.92	20	
Surr: 4-Bromofluorobenzene	0.78		0.9681		80.1	39.1	146	0	0	

Sample ID: **lcs-76167**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76167**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3573760** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.0	70	130			
Toluene	0.94	0.050	1.000	0	94.4	70	130			
Ethylbenzene	0.96	0.050	1.000	0	95.6	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.2	70	130			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.9	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#: **2307446**

18-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal 004

Sample ID: **mb-76167**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76167**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3573761** 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	0.96		1.000		96.0	39.1	146			

Sample ID: **2307446-042ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-30 0'**	Batch ID: **76167**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574169** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.024	0.9699	0	89.1	70	130			
Toluene	0.88	0.048	0.9699	0	90.3	70	130			
Ethylbenzene	0.90	0.048	0.9699	0	92.3	70	130			
Xylenes, Total	2.7	0.097	2.910	0	91.6	70	130			
Surr: 4-Bromofluorobenzene	0.98		0.9699		101	39.1	146			

Sample ID: **2307446-042amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-30 0'**	Batch ID: **76167**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574204** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.024	0.9671	0	97.8	70	130	9.05	20	
Toluene	0.96	0.048	0.9671	0	99.8	70	130	9.69	20	
Ethylbenzene	0.99	0.048	0.9671	0	102	70	130	9.98	20	
Xylenes, Total	3.0	0.097	2.901	0	102	70	130	10.8	20	
Surr: 4-Bromofluorobenzene	0.99		0.9671		102	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: 2307446

RcptNo: 1

Received By: Tracy Casarrubias 7/12/2023 8:00:00 AM

Completed By: Tracy Casarrubias 7/12/2023 9:03:05 AM

Reviewed By: MO JHE MO 7/12/23 7/12/23

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: MO 7/12/23

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 missingon COC-TMC 7/12/23

16. Additional remarks:

17. **Cooler Information**

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

Chain of Custody Record

Client: Vertex

(direct bill to Devon-Harvard Divest, see Remarks)

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 48-hour

Project Name: SDE 31 Federal 004

Project #: 22E-02816-34

Project Manager: Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☒ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 5.4 - 0 = 5.4 °C

2.2 - 0 = 2.2 °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. 2307446	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)
07/10/23	07:40	Soil	BH23-12 0'	1, 4oz jar		001	X	X					X			
07/10/23	07:50	Soil	BH23-12 2'	1, 4oz jar		002	X	X					X			
07/10/23	07:55	Soil	BH23-12 4'	1, 4oz jar		003	X	X					X			
07/10/23	08:05	Soil	BH23-13 0'	1, 4oz jar		004	X	X					X			
07/10/23	08:15	Soil	BH23-13 2'	1, 4oz jar		005	X	X					X			
07/10/23	08:25	Soil	BH23-13 4'	1, 4oz jar		006	X	X					X			
07/10/23	08:35	Soil	BH23-14 0'	1, 4oz jar		007	X	X					X			
07/10/23	08:45	Soil	BH23-14 2'	1, 4oz jar		008	X	X					X			
07/10/23	09:25	Soil	BH23-14 4'	1, 4oz jar		009	X	X					X			
07/10/23	09:35	Soil	BH23-15 0'	1, 4oz jar		010	X	X					X			
07/10/23	09:50	Soil	BH23-15 2'	1, 4oz jar		011	X	X					X			
07/10/23	10:05	Soil	BH23-15 3'	1, 4oz jar		012	X	X					X			

Analysis Request

Date	Time	Relinquished by	Received by	Via	Date	Time
7-11-23	07:00				7/11/23	700
7/11/23	1900			courier	7/12/23	8:00

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@vertex.ca for Final Report

1/5

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-Harvard Divest, see Remarks)

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__48-hour__**

Project Name:

SDE 31 Federal 004

Project #:

22E-02816-34

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): See Checklist

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. 2307446	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)
07/10/23	09:30	Soil	BH23-16 0'	1, 4oz jar		013	X	X					X			
07/10/23	09:35	Soil	BH23-16 2'	1, 4oz jar		014	X	X					X			
07/10/23	09:40	Soil	BH23-16 4'	1, 4oz jar		015	X	X					X			
07/10/23	09:45	Soil	BH23-17 0'	1, 4oz jar		016	X	X					X			
07/10/23	09:50	Soil	BH23-17 2'	1, 4oz jar		017	X	X					X			
07/10/23	10:25	Soil	BH23-18 0'	1, 4oz jar		018	X	X					X			
07/10/23	10:30	Soil	BH23-18 2'	1, 4oz jar		019	X	X					X			
07/10/23	10:00	Soil	BH23-19 0'	1, 4oz jar		020	X	X					X			
07/10/23	10:05	Soil	BH23-19 2'	1, 4oz jar		021	X	X					X			
07/10/23	10:45	Soil	BH23-20 0'	1, 4oz jar		022	X	X					X			
07/10/23	10:50	Soil	BH23-20 2'	1, 4oz jar		023	X	X					X			
07/10/23	10:30	Soil	BH23-21 0'	1, 4oz jar		024	X	X					X			

Relinquished by:	Date	Time	Received by:	Via:	Date	Time
	7-11-23	07:00			7/11/23	700
	7/11/23	1900		courier	7/12/23	8:00

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@vertex.ca for Final Report

2/5

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-Harvard Divest, see Remarks)

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** **48-hour**

Project Name:

SDE 31 Federal 004

Project #:

22E-02816-34

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(Including CF): See Checklist

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. 2307446	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)
07/10/23	10:40	Soil	BH23-21 2'	1, 4oz jar		025	X	X					X			
07/10/23	11:00	Soil	BH23-22 0'	1, 4oz jar		026	X	X					X			
07/10/23	11:10	Soil	BH23-22 2'	1, 4oz jar		027	X	X					X			
07/10/23	11:20	Soil	BH23-23 0'	1, 4oz jar		028	X	X					X			
07/10/23	11:30	Soil	BH23-23 2'	1, 4oz jar		029	X	X					X			
07/10/23	11:15	Soil	BH23-24 0'	1, 4oz jar		030	X	X					X			
07/10/23	11:25	Soil	BH23-24 2'	1, 4oz jar		031	X	X					X			
07/10/23	11:30	Soil	BH23-25 0'	1, 4oz jar		032	X	X					X			
07/10/23	11:40	Soil	BH23-25 2'	1, 4oz jar		033	X	X					X			
07/10/23	11:40	Soil	BH23-26 0'	1, 4oz jar		034	X	X					X			
07/10/23	11:45	Soil	BH23-26 2'	1, 4oz jar		035	X	X					X			
07/10/23	11:45	Soil	BH23-27 0'	1, 4oz jar		036	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7-11-23	07:00				7/11/23	1700
7/11/23	1900			Courier	7/12/23	8:00

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@vertex.ca for Final Report

3/5

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-Harvard Divest, see Remarks)

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** 48-hour

Project Name:

SDE 31 Federal 004

Project #:

22E-02816-34

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): See Checklist

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. 2307446	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)
07/10/23	11:50	Soil	BH23-27 2'	1, 4oz jar		037	X	X					X			
07/10/23	11:55	Soil	BH23-28 0'	1, 4oz jar		038	X	X					X			
07/10/23	12:05	Soil	BH23-28 2'	1, 4oz jar		039	X	X					X			
07/10/23	13:00	Soil	BH23-29 0'	1, 4oz jar		040	X	X					X			
07/10/23	13:10	Soil	BH23-29 2'	1, 4oz jar		041	X	X					X			
07/10/23	13:10	Soil	BH23-30 0'	1, 4oz jar		042	X	X					X			
07/10/23	13:20	Soil	BH23-30 2'	1, 4oz jar		043	X	X					X			
07/10/23	13:25	Soil	BH23-31 0'	1, 4oz jar		044	X	X					X			
07/10/23	13:30	Soil	BH23-31 2'	1, 4oz jar		045	X	X					X			
07/10/23	13:30	Soil	BH23-32 0'	1, 4oz jar		046	X	X					X			
07/10/23	13:35	Soil	BH23-32 2'	1, 4oz jar		047	X	X					X			
07/10/23	13:40	Soil	BH23-33 0'	1, 4oz jar		048	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7-11-23	0700				7/11/23	700
7/11/23	1900			Courier	7/12/23	8:00

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@vertex.ca for Final Report

4/5

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-Harvard Divest, see Remarks)

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** **48-hour**

Project Name:

SDE 31 Federal 004

Project #:

22E-02816-34

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L.Pullman

On Ice: ☐ Yes ☐ No

# of Coolers:

Cooler Temp(including CF): See Checklist

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. 2307446	(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)
07/10/23	13:45	Soil	BH23-33 2'	1, 4oz jar		049	X	X					X			
07/10/23	13:40	Soil	BH23-34 0'	1, 4oz jar		050	X	X					X			
07/10/23	13:45	Soil	BH23-34 2'	1, 4oz jar		051	X	X					X			
07/10/23	13:50	Soil	BH23-35 0'	1, 4oz jar		052	X	X					X			
07/10/23	13:55	Soil	BH23-35 2'	1, 4oz jar		053	X	X					X			
07/10/23	13:50	Soil	BH23-36 0'	1, 4oz jar		054	X	X					X			
07/10/23	13:55	Soil	BH23-36 2'	1, 4oz jar		055	X	X					X			
07/10/23	14:00	Soil	BH23-37 0'	1, 4oz jar		056	X	X					X			
07/10/23	14:15	Soil	BH23-37 2'	1, 4oz jar		057	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7-11-23	07:00	Lab Pullman			7/11/23	700
7/11/23	1900			Courier	7/12/23	8:00

Remarks: Direct bill to Devon, Dale Woodall
Harvard Divest Site – SDE 31 Federal 004
GL Account 7700100
CC 1007884901
cc. kstallings@vertex.ca for Final Report

S/S

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

July 24, 2023

Kent Stallings

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

RE: SDE 31 Federal CTB OrderNo.: 2307525

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 26 sample(s) on 7/13/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-38 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:25:00 AM
Lab ID: 2307525-001 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 4:25:08 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 4:25:08 PM
Surr: DNOP	85.4	69-147		%Rec	1	7/14/2023 4:25:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 8:08:00 PM
Surr: BFB	98.4	15-244		%Rec	1	7/14/2023 8:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 8:08:00 PM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 8:08:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 8:08:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/14/2023 8:08:00 PM
Surr: 4-Bromofluorobenzene	98.7	39.1-146		%Rec	1	7/14/2023 8:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	69	60		mg/Kg	20	7/14/2023 7:27:38 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-38 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:25:00 AM
Lab ID: 2307525-002 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/14/2023 4:36:03 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/14/2023 4:36:03 PM
Surr: DNOP	119	69-147		%Rec	1	7/14/2023 4:36:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 9:15:00 PM
Surr: BFB	99.5	15-244		%Rec	1	7/14/2023 9:15:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 9:15:00 PM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 9:15:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 9:15:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/14/2023 9:15:00 PM
Surr: 4-Bromofluorobenzene	96.7	39.1-146		%Rec	1	7/14/2023 9:15:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	110	60		mg/Kg	20	7/14/2023 11:33:59 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-39 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:15:00 AM
Lab ID: 2307525-003 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	7/14/2023 4:47:08 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/14/2023 4:47:08 PM
Surr: DNOP	90.0	69-147		%Rec	1	7/14/2023 4:47:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/14/2023 10:42:00 PM
Surr: BFB	101	15-244		%Rec	1	7/14/2023 10:42:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 10:42:00 PM
Toluene	ND	0.049		mg/Kg	1	7/14/2023 10:42:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/14/2023 10:42:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/14/2023 10:42:00 PM
Surr: 4-Bromofluorobenzene	95.8	39.1-146		%Rec	1	7/14/2023 10:42:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	430	60		mg/Kg	20	7/14/2023 12:11:13 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-39 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:25:00 AM
Lab ID: 2307525-004 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/14/2023 4:58:11 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 4:58:11 PM
Surr: DNOP	70.8	69-147		%Rec	1	7/14/2023 4:58:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/14/2023 11:04:00 PM
Surr: BFB	98.3	15-244		%Rec	1	7/14/2023 11:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/14/2023 11:04:00 PM
Toluene	ND	0.050		mg/Kg	1	7/14/2023 11:04:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/14/2023 11:04:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/14/2023 11:04:00 PM
Surr: 4-Bromofluorobenzene	97.4	39.1-146		%Rec	1	7/14/2023 11:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	95	60		mg/Kg	20	7/14/2023 12:48:27 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-40 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:30:00 AM
Lab ID: 2307525-005 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	14	8.5		mg/Kg	1	7/14/2023 5:09:13 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	7/14/2023 5:09:13 PM
Surr: DNOP	92.6	69-147		%Rec	1	7/14/2023 5:09:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 11:26:00 PM
Surr: BFB	96.9	15-244		%Rec	1	7/14/2023 11:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 11:26:00 PM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 11:26:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 11:26:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/14/2023 11:26:00 PM
Surr: 4-Bromofluorobenzene	95.3	39.1-146		%Rec	1	7/14/2023 11:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3400	150		mg/Kg	50	7/18/2023 1:23:07 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-40 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:35:00 AM
Lab ID: 2307525-006 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 6:11:03 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/14/2023 6:11:03 PM
Surr: DNOP	83.8	69-147		%Rec	1	7/14/2023 6:11:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/14/2023 11:47:00 PM
Surr: BFB	98.1	15-244		%Rec	1	7/14/2023 11:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/14/2023 11:47:00 PM
Toluene	ND	0.048		mg/Kg	1	7/14/2023 11:47:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/14/2023 11:47:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/14/2023 11:47:00 PM
Surr: 4-Bromofluorobenzene	97.9	39.1-146		%Rec	1	7/14/2023 11:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1800	61		mg/Kg	20	7/14/2023 1:38:06 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-41 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:35:00 AM
Lab ID: 2307525-007 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	7/14/2023 6:22:11 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/14/2023 6:22:11 PM
Surr: DNOP	91.8	69-147		%Rec	1	7/14/2023 6:22:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/15/2023 12:09:00 AM
Surr: BFB	101	15-244		%Rec	1	7/15/2023 12:09:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 12:09:00 AM
Toluene	ND	0.048		mg/Kg	1	7/15/2023 12:09:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/15/2023 12:09:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/15/2023 12:09:00 AM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	7/15/2023 12:09:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2500	150		mg/Kg	50	7/18/2023 1:35:32 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-41 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:40:00 AM
Lab ID: 2307525-008 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	7/14/2023 6:33:15 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/14/2023 6:33:15 PM
Surr: DNOP	118	69-147		%Rec	1	7/14/2023 6:33:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/15/2023 12:31:00 AM
Surr: BFB	103	15-244		%Rec	1	7/15/2023 12:31:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 12:31:00 AM
Toluene	ND	0.048		mg/Kg	1	7/15/2023 12:31:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/15/2023 12:31:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/15/2023 12:31:00 AM
Surr: 4-Bromofluorobenzene	102	39.1-146		%Rec	1	7/15/2023 12:31:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	590	60		mg/Kg	20	7/14/2023 2:02:55 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-42 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:45:00 AM
Lab ID: 2307525-009 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	7/14/2023 6:55:03 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	7/14/2023 6:55:03 PM
Surr: DNOP	84.6	69-147		%Rec	1	7/14/2023 6:55:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/15/2023 12:53:00 AM
Surr: BFB	104	15-244		%Rec	1	7/15/2023 12:53:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 12:53:00 AM
Toluene	ND	0.049		mg/Kg	1	7/15/2023 12:53:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/15/2023 12:53:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/15/2023 12:53:00 AM
Surr: 4-Bromofluorobenzene	104	39.1-146		%Rec	1	7/15/2023 12:53:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	190	60		mg/Kg	20	7/14/2023 2:15:20 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-42 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:50:00 AM
Lab ID: 2307525-010 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 7:06:02 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 7:06:02 PM
Surr: DNOP	114	69-147		%Rec	1	7/14/2023 7:06:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/15/2023 1:15:00 AM
Surr: BFB	106	15-244		%Rec	1	7/15/2023 1:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 1:15:00 AM
Toluene	ND	0.050		mg/Kg	1	7/15/2023 1:15:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/15/2023 1:15:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	7/15/2023 1:15:00 AM
Surr: 4-Bromofluorobenzene	106	39.1-146		%Rec	1	7/15/2023 1:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	99	60		mg/Kg	20	7/14/2023 2:27:45 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-43 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:45:00 AM
Lab ID: 2307525-011 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/14/2023 7:17:00 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/14/2023 7:17:00 PM
Surr: DNOP	94.8	69-147		%Rec	1	7/14/2023 7:17:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/15/2023 1:59:00 AM
Surr: BFB	105	15-244		%Rec	1	7/15/2023 1:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 1:59:00 AM
Toluene	ND	0.050		mg/Kg	1	7/15/2023 1:59:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/15/2023 1:59:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	7/15/2023 1:59:00 AM
Surr: 4-Bromofluorobenzene	107	39.1-146		%Rec	1	7/15/2023 1:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	77	60		mg/Kg	20	7/14/2023 2:40:09 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-43 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 9:50:00 AM
Lab ID: 2307525-012 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	7/15/2023 4:57:38 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/15/2023 4:57:38 PM
Surr: DNOP	73.3	69-147		%Rec	1	7/15/2023 4:57:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/15/2023 2:20:00 AM
Surr: BFB	110	15-244		%Rec	1	7/15/2023 2:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 2:20:00 AM
Toluene	ND	0.049		mg/Kg	1	7/15/2023 2:20:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/15/2023 2:20:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/15/2023 2:20:00 AM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	7/15/2023 2:20:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	59		mg/Kg	20	7/14/2023 2:52:34 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-44 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:05:00 AM
Lab ID: 2307525-013 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/17/2023 12:13:30 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/17/2023 12:13:30 PM
Surr: DNOP	85.7	69-147		%Rec	1	7/17/2023 12:13:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/15/2023 2:42:00 AM
Surr: BFB	110	15-244		%Rec	1	7/15/2023 2:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 2:42:00 AM
Toluene	ND	0.047		mg/Kg	1	7/15/2023 2:42:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/15/2023 2:42:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/15/2023 2:42:00 AM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	7/15/2023 2:42:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	670	60		mg/Kg	20	7/14/2023 3:04:58 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-44 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:15:00 AM
Lab ID: 2307525-014 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/14/2023 7:49:42 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 7:49:42 PM
Surr: DNOP	94.9	69-147		%Rec	1	7/14/2023 7:49:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/15/2023 3:04:00 AM
Surr: BFB	113	15-244		%Rec	1	7/15/2023 3:04:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 3:04:00 AM
Toluene	ND	0.049		mg/Kg	1	7/15/2023 3:04:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/15/2023 3:04:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/15/2023 3:04:00 AM
Surr: 4-Bromofluorobenzene	114	39.1-146		%Rec	1	7/15/2023 3:04:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1100	60		mg/Kg	20	7/14/2023 3:17:23 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-45 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:10:00 AM
Lab ID: 2307525-015 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 8:00:34 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/14/2023 8:00:34 PM
Surr: DNOP	76.0	69-147		%Rec	1	7/14/2023 8:00:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/15/2023 3:26:00 AM
Surr: BFB	115	15-244		%Rec	1	7/15/2023 3:26:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 3:26:00 AM
Toluene	ND	0.049		mg/Kg	1	7/15/2023 3:26:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/15/2023 3:26:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/15/2023 3:26:00 AM
Surr: 4-Bromofluorobenzene	114	39.1-146		%Rec	1	7/15/2023 3:26:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1800	60		mg/Kg	20	7/14/2023 3:54:36 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-45 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:15:00 AM
Lab ID: 2307525-016 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 8:11:24 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 8:11:24 PM
Surr: DNOP	105	69-147		%Rec	1	7/14/2023 8:11:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/15/2023 3:48:00 AM
Surr: BFB	114	15-244		%Rec	1	7/15/2023 3:48:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 3:48:00 AM
Toluene	ND	0.048		mg/Kg	1	7/15/2023 3:48:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/15/2023 3:48:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/15/2023 3:48:00 AM
Surr: 4-Bromofluorobenzene	114	39.1-146		%Rec	1	7/15/2023 3:48:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1200	61		mg/Kg	20	7/14/2023 4:07:01 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-46 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:25:00 AM
Lab ID: 2307525-017 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 8:22:13 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/14/2023 8:22:13 PM
Surr: DNOP	89.3	69-147		%Rec	1	7/14/2023 8:22:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/15/2023 4:10:00 AM
Surr: BFB	113	15-244		%Rec	1	7/15/2023 4:10:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 4:10:00 AM
Toluene	ND	0.048		mg/Kg	1	7/15/2023 4:10:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/15/2023 4:10:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/15/2023 4:10:00 AM
Surr: 4-Bromofluorobenzene	114	39.1-146		%Rec	1	7/15/2023 4:10:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	7/14/2023 4:19:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-46 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:30:00 AM
Lab ID: 2307525-018 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	7/14/2023 8:33:03 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	7/14/2023 8:33:03 PM
Surr: DNOP	97.0	69-147		%Rec	1	7/14/2023 8:33:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/15/2023 4:31:00 AM
Surr: BFB	119	15-244		%Rec	1	7/15/2023 4:31:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 4:31:00 AM
Toluene	ND	0.047		mg/Kg	1	7/15/2023 4:31:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/15/2023 4:31:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/15/2023 4:31:00 AM
Surr: 4-Bromofluorobenzene	117	39.1-146		%Rec	1	7/15/2023 4:31:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	260	60		mg/Kg	20	7/14/2023 4:31:50 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-47 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 10:50:00 AM
Lab ID: 2307525-019 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	7/14/2023 8:43:51 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/14/2023 8:43:51 PM
Surr: DNOP	93.8	69-147		%Rec	1	7/14/2023 8:43:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/15/2023 4:53:00 AM
Surr: BFB	121	15-244		%Rec	1	7/15/2023 4:53:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/15/2023 4:53:00 AM
Toluene	ND	0.049		mg/Kg	1	7/15/2023 4:53:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/15/2023 4:53:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/15/2023 4:53:00 AM
Surr: 4-Bromofluorobenzene	119	39.1-146		%Rec	1	7/15/2023 4:53:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1100	60		mg/Kg	20	7/14/2023 4:44:15 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-47 2'
Project: SDE 31 Federal CTB
Collection Date: 7/11/2023 10:50:00 AM
Lab ID: 2307525-020 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/14/2023 8:54:40 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/14/2023 8:54:40 PM
Surr: DNOP	106	69-147		%Rec	1	7/14/2023 8:54:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/15/2023 5:15:00 AM
Surr: BFB	121	15-244		%Rec	1	7/15/2023 5:15:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/15/2023 5:15:00 AM
Toluene	ND	0.048		mg/Kg	1	7/15/2023 5:15:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/15/2023 5:15:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	7/15/2023 5:15:00 AM
Surr: 4-Bromofluorobenzene	119	39.1-146		%Rec	1	7/15/2023 5:15:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	330	60		mg/Kg	20	7/14/2023 4:56:40 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.		

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-48 0'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 11:00:00 AM
Lab ID: 2307525-021 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 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	7/14/2023 10:00:27 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 10:00:27 PM
Surr: DNOP	89.6	69-147		%Rec	1	7/14/2023 10:00:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/17/2023 2:08:00 PM
Surr: BFB	82.4	15-244		%Rec	1	7/17/2023 2:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/17/2023 2:08:00 PM
Toluene	ND	0.049		mg/Kg	1	7/17/2023 2:08:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/17/2023 2:08:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/17/2023 2:08:00 PM
Surr: 4-Bromofluorobenzene	83.8	39.1-146		%Rec	1	7/17/2023 2:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2100	150		mg/Kg	50	7/18/2023 1:47:56 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-48 2'
Project: SDE 31 Federal CTB
Collection Date: 7/11/2023 11:05:00 AM
Lab ID: 2307525-022 **Matrix:** SOIL
Received Date: 7/13/2023 7:30:00 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	7/14/2023 10:48:16 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/14/2023 10:48:16 PM
Surr: DNOP	93.9	69-147		%Rec	1	7/14/2023 10:48:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/17/2023 2:30:00 PM
Surr: BFB	85.9	15-244		%Rec	1	7/17/2023 2:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/17/2023 2:30:00 PM
Toluene	ND	0.049		mg/Kg	1	7/17/2023 2:30:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/17/2023 2:30:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/17/2023 2:30:00 PM
Surr: 4-Bromofluorobenzene	85.0	39.1-146		%Rec	1	7/17/2023 2:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	1400	60		mg/Kg	20	7/14/2023 4:14:06 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-49 0'
Project: SDE 31 Federal CTB
Collection Date: 7/11/2023 11:10:00 AM
Lab ID: 2307525-023 **Matrix:** SOIL
Received Date: 7/13/2023 7:30:00 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	7/14/2023 11:12:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/14/2023 11:12:14 PM
Surr: DNOP	102	69-147		%Rec	1	7/14/2023 11:12:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/17/2023 2:52:00 PM
Surr: BFB	87.2	15-244		%Rec	1	7/17/2023 2:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/17/2023 2:52:00 PM
Toluene	ND	0.050		mg/Kg	1	7/17/2023 2:52:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/17/2023 2:52:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/17/2023 2:52:00 PM
Surr: 4-Bromofluorobenzene	83.4	39.1-146		%Rec	1	7/17/2023 2:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	7/14/2023 4:51:20 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-49 2'
Project: SDE 31 Federal CTB
Collection Date: 7/11/2023 11:15:00 AM
Lab ID: 2307525-024 **Matrix:** SOIL
Received Date: 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/14/2023 11:36:11 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/14/2023 11:36:11 PM
Surr: DNOP	113	69-147		%Rec	1	7/14/2023 11:36:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/17/2023 3:14:00 PM
Surr: BFB	83.7	15-244		%Rec	1	7/17/2023 3:14:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/17/2023 3:14:00 PM
Toluene	ND	0.050		mg/Kg	1	7/17/2023 3:14:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/17/2023 3:14:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/17/2023 3:14:00 PM
Surr: 4-Bromofluorobenzene	83.1	39.1-146		%Rec	1	7/17/2023 3:14:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	60		mg/Kg	20	7/14/2023 5:28:34 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 **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-50 0'
Project: SDE 31 Federal CTB
Collection Date: 7/11/2023 11:25:00 AM
Lab ID: 2307525-025 **Matrix:** SOIL
Received Date: 7/13/2023 7:30:00 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	7/15/2023 12:00:06 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/15/2023 12:00:06 AM
Surr: DNOP	90.8	69-147		%Rec	1	7/15/2023 12:00:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/17/2023 3:36:00 PM
Surr: BFB	86.7	15-244		%Rec	1	7/17/2023 3:36:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/17/2023 3:36:00 PM
Toluene	ND	0.048		mg/Kg	1	7/17/2023 3:36:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/17/2023 3:36:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/17/2023 3:36:00 PM
Surr: 4-Bromofluorobenzene	83.8	39.1-146		%Rec	1	7/17/2023 3:36:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	ND	61		mg/Kg	20	7/14/2023 5:40:59 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2307525**
Date Reported: **7/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-50 2'
Project: SDE 31 Federal CTB **Collection Date:** 7/11/2023 11:30:00 AM
Lab ID: 2307525-026 **Matrix:** SOIL **Received Date:** 7/13/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/15/2023 12:24:02 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/15/2023 12:24:02 AM
Surr: DNOP	96.3	69-147		%Rec	1	7/15/2023 12:24:02 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/17/2023 3:58:00 PM
Surr: BFB	87.4	15-244		%Rec	1	7/17/2023 3:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/17/2023 3:58:00 PM
Toluene	ND	0.049		mg/Kg	1	7/17/2023 3:58:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/17/2023 3:58:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/17/2023 3:58:00 PM
Surr: 4-Bromofluorobenzene	83.4	39.1-146		%Rec	1	7/17/2023 3:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	310	60		mg/Kg	20	7/14/2023 5:53:23 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical 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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **MB-76202**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76202**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3573322**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76202**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76202**	RunNo: **98195**								
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3573323**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.9	90	110			

Sample ID: **MB-76214**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76214**	RunNo: **98234**								
Prep Date: **7/14/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574951**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76214**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76214**	RunNo: **98234**								
Prep Date: **7/14/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574952**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.6	90	110			

Sample ID: **MB-76210**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **PBS**	Batch ID: **76210**	RunNo: **98246**								
Prep Date: **7/14/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575644**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-76210**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**								
Client ID: **LCSS**	Batch ID: **76210**	RunNo: **98246**								
Prep Date: **7/14/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575645**	Units: **mg/Kg**							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **MB-76190**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76190**	RunNo: **98223**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574283** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		122	69	147			

Sample ID: **LCS-76190**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76190**	RunNo: **98223**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574284** 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	99.4	61.9	130			
Surr: DNOP	5.1		5.000		101	69	147			

Sample ID: **2307525-025AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-50 0'**	Batch ID: **76190**	RunNo: **98223**
Prep Date: **7/13/2023**	Analysis Date: **7/15/2023**	SeqNo: **3574331** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.8	48.83	0	95.1	54.2	135			
Surr: DNOP	4.5		4.883		93.1	69	147			

Sample ID: **2307525-025AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-50 0'**	Batch ID: **76190**	RunNo: **98223**
Prep Date: **7/13/2023**	Analysis Date: **7/15/2023**	SeqNo: **3574332** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	37	9.8	48.97	0	74.9	54.2	135	23.5	29.2	
Surr: DNOP	3.3		4.897		67.1	69	147	0	0	S

Sample ID: **2307525-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-38 0'**	Batch ID: **76194**	RunNo: **98217**
Prep Date: **7/13/2023**	Analysis Date: **7/15/2023**	SeqNo: **3574346** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	36	9.1	45.66	0	78.3	54.2	135			
Surr: DNOP	3.4		4.566		73.7	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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **2307525-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-38 0'**	Batch ID: **76194**	RunNo: **98217**
Prep Date: **7/13/2023**	Analysis Date: **7/15/2023**	SeqNo: **3574347** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	9.9	49.31	0	76.4	54.2	135	5.23	29.2	
Surr: DNOP	3.8		4.931		76.5	69	147	0	0	

Sample ID: **LCS-76194**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76194**	RunNo: **98217**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574432** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.5	61.9	130			
Surr: DNOP	4.3		5.000		86.0	69	147			

Sample ID: **MB-76194**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76194**	RunNo: **98217**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3574435** 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		94.0	69	147			

Sample ID: **MB-76217**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76217**	RunNo: **98269**
Prep Date: **7/14/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576667** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		93.8	69	147			

Sample ID: **LCS-76217**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76217**	RunNo: **98269**
Prep Date: **7/14/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576668** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		87.9	69	147			

Sample ID: **MB-76249**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576669** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation 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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **MB-76249**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576669** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.1		10.00		80.9	69	147			

Sample ID: **LCS-76249**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576670** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.9	61.9	130			
Surr: DNOP	4.1		5.000		81.2	69	147			

Sample ID: **2307525-013AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-44 0'**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576699** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	9.0	44.96	0	88.4	54.2	135			
Surr: DNOP	3.7		4.496		82.7	69	147			

Sample ID: **2307525-013AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-44 0'**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576701** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	9.0	45.13	0	87.5	54.2	135	0.638	29.2	
Surr: DNOP	3.7		4.513		81.8	69	147	0	0	

Sample ID: **MB-76249**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576707** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.0		10.00		80.5	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **LCS-76249**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76249**	RunNo: **98269**
Prep Date: **7/17/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576711** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	83.8	61.9	130			
Surr: DNOP	4.0		5.000		79.5	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **lcs-76172**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **76172**	RunNo: **98207**							
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575220**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.1	70	130			
Surr: BFB	2100		1000		214	15	244			

Sample ID: **mb-76172**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **76172**	RunNo: **98207**							
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575221**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	990		1000		98.9	15	244			

Sample ID: **2307525-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH23-38 0'**	Batch ID: **76172**	RunNo: **98207**							
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575223**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	24.83	0	96.9	70	130			
Surr: BFB	2200		993.0		219	15	244			

Sample ID: **2307525-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH23-38 0'**	Batch ID: **76172**	RunNo: **98207**							
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575224**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	24.75	0	97.3	70	130	0.156	20	
Surr: BFB	2100		990.1		216	15	244	0	0	

Sample ID: **lcs-76175**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **76175**	RunNo: **98241**							
Prep Date: **7/13/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576157**	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	99.5	70	130			
Surr: BFB	2100		1000		205	15	244			

Sample ID: **mb-76175**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **76175**	RunNo: **98241**							
Prep Date: **7/13/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576158**	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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **mb-76175**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76175**	RunNo: **98241**
Prep Date: **7/13/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576158** 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	860		1000		86.1	15	244			

Sample ID: **lcs-76209**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76209**	RunNo: **98241**
Prep Date: **7/14/2023**	Analysis Date: **7/18/2023**	SeqNo: **3576385** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		201	15	244			

Sample ID: **mb-76209**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76209**	RunNo: **98241**
Prep Date: **7/14/2023**	Analysis Date: **7/18/2023**	SeqNo: **3576386** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	790		1000		79.1	15	244			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **lcs-76172**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76172**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575267** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	85.4	70	130			
Toluene	0.87	0.050	1.000	0	86.7	70	130			
Ethylbenzene	0.88	0.050	1.000	0	88.0	70	130			
Xylenes, Total	2.6	0.10	3.000	0	88.3	70	130			
Surr: 4-Bromofluorobenzene	1.0		1.000		99.8	39.1	146			

Sample ID: **mb-76172**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76172**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575268** Units: **mg/Kg**

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

Sample ID: **2307525-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-38 2'**	Batch ID: **76172**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575271** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.024	0.9747	0	96.9	70	130			
Toluene	0.96	0.049	0.9747	0	98.8	70	130			
Ethylbenzene	0.98	0.049	0.9747	0	101	70	130			
Xylenes, Total	2.9	0.097	2.924	0	101	70	130			
Surr: 4-Bromofluorobenzene	0.96		0.9747		98.8	39.1	146			

Sample ID: **2307525-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-38 2'**	Batch ID: **76172**	RunNo: **98207**
Prep Date: **7/13/2023**	Analysis Date: **7/14/2023**	SeqNo: **3575272** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9843	0	94.8	70	130	1.26	20	
Toluene	0.95	0.049	0.9843	0	96.5	70	130	1.43	20	
Ethylbenzene	0.97	0.049	0.9843	0	98.9	70	130	0.818	20	
Xylenes, Total	2.9	0.098	2.953	0	98.8	70	130	0.908	20	
Surr: 4-Bromofluorobenzene	0.96		0.9843		97.3	39.1	146	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307525**

24-Jul-23

Client: Vertex Resources Services, Inc.

Project: SDE 31 Federal CTB

Sample ID: **lcs-76175**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76175**	RunNo: **98241**
Prep Date: **7/13/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576185** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	96.7	70	130			
Toluene	0.99	0.050	1.000	0	98.6	70	130			
Ethylbenzene	1.0	0.050	1.000	0	100	70	130			
Xylenes, Total	3.0	0.10	3.000	0	100	70	130			
Surr: 4-Bromofluorobenzene	0.87		1.000		86.9	39.1	146			

Sample ID: **mb-76175**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76175**	RunNo: **98241**
Prep Date: **7/13/2023**	Analysis Date: **7/17/2023**	SeqNo: **3576186** 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	0.83		1.000		82.7	39.1	146			

Sample ID: **lcs-76209**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76209**	RunNo: **98241**
Prep Date: **7/14/2023**	Analysis Date: **7/18/2023**	SeqNo: **3576413** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.81		1.000		80.5	39.1	146			

Sample ID: **mb-76209**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76209**	RunNo: **98241**
Prep Date: **7/14/2023**	Analysis Date: **7/18/2023**	SeqNo: **3576414** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.80		1.000		79.5	39.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: 2307525

RcptNo: 1

Received By: Juan Rojas 7/13/2023 7:30:00 AM

Completed By: Cheyenne Cason 7/13/2023 7:55:26 AM

Reviewed By: JR 7/13/23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: SCM 07/13/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

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

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#: permian@vertex.ca

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ Rush 48 hr

Project Name: SDE 31 Federal CTB

Project #: 21E-02816-34

Project Manager: Kent Stallings

Sampler: SPC

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Matty

Cooler Temp(including CF): 7.8-0.1=7.7 (°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. 230725	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)
7/11/23	9:25	Soil	BH23-38 0'	1 4oz jar	Ice	001	✓	✓					✓			
	9:25		BH23-38 2'			002										
	9:15		BH23-39 0'			003										
	9:25		BH23-39 2'			004										
	9:30		BH23-40 0'			005										
	9:35		BH23-40 2'			006										
	9:35		BH23-41 0'			007										
	9:40		BH23-41 2'			008										
	9:45		BH23-42 0'			009										
	9:50		BH23-42 2'			010										
	9:45		BH23-43 0'			011										
	9:50		BH23-43 2'			012										

Date	Time	Relinquished by	Received by	Via	Date	Time
7/11/23	1513	Sally Carttar				
7/12/23	1900				7/12/23	945
				Courier	7/13/23	7:30

Remarks:
Direct Bill Devon, Dale Woodall PP 1/3
Harvard Div. Site SDE 31 Federal 004
GL Account 7700100
CC 1007884901
Final: Kstallings@vertex.

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

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#: permian@vertex.ca

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☑ Rush 48 hr

Project Name: SDE 31 Federal CTB

Project #: 21E-02816-34

Project Manager: Kent Stallings

Sampler: SPC

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Monty

Cooler Temp(including CF): 2.8-0.1=2.7 (°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. 2307525	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)
7/11/23	1005	Soil	BH23-44 0'	1 4oz jar	ice	013	✓	✓					✓			
	1015		BH23-44 2'			014										
	1010		BH23-45 0'			015										
	1015		BH23-45 2'			016										
	1025		BH23-46 0'			017										
	1030		BH23-46 2'			018										
	1050	SC	BH23-47 0'			019										
	1050		BH23-47 2'			020										
	1100		BH23-48 0'			021										
	1105		BH23-48 2'			022										
	1110		BH23-49 0'			023										
	1115		BH23-49 2'			024										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
7/11/23	1514	Sally Carthar			7/12/23	945
7/13/23	1900			Courier	7/13/23	7:30

Remarks: Direct Bill Devon, Dale Woodall pp. 2/3
Harvard Div. SHE SDE 31 Federal 004
GL Account 7700100
CC 1007884901 Final Rpt. KStallings@vert

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#: permian@vertex.ca

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☑ Rush 48 hr

Project Name: SDE 31 Federal CTB

Project #: 21E-02816-34

Project Manager: Kent Stallings

Sampler: SPC

On Ice: ☑ Yes ☐ No

# of Coolers: 1 (Morty)

Cooler Temp (Including CF): 2.8-0.1 = 2.7 (°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. 2307525	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)
7/11/23	1125	Soil	BH 23-50 0'	1 4oz jar	ice	025	✓	✓					✓			
"	1130	"	BH23-50 2'	"	"	026	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/11/23	1514	Sally Carttar		-	7/12/23	945
7/12/23	1900			courier	7/13/23	7:30

Remarks:

Direct Bill Devon, Dale Woodall

Harvard Div Site SDE 31 Federal 004

GL Account 7700100

CC 1007884901

pp 3/3

Final Report KStallings@vertex.ca

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Kent Stallings
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 4/24/2024 4:43:10 PM

JOB DESCRIPTION

SDE 31 Federal CTB

JOB NUMBER

885-2613-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
4/24/2024 4:43:10 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: SDE 31 Federal CTB

Laboratory Job ID: 885-2613-1

Table of Contents

Cover Page 1
Table of Contents 3
Definitions/Glossary 4
Case Narrative 5
Client Sample Results 7
QC Sample Results 26
QC Association Summary 31
Lab Chronicle 36
Certification Summary 42
Chain of Custody 43
Receipt Checklists 45

Definitions/Glossary

Client: Vertex Job ID: 885-2613-1
Project/Site: SDE 31 Federal CTB

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: SDE 31 Federal CTB

Job ID: 885-2613-1

Job ID: 885-2613-1 Eurofins Albuquerque

Job Narrative
885-2613-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/10/2024 7:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°C.

Gasoline Range Organics
Method 8015D_GRO: Internal standard responses were outside of acceptance limits for the following sample: BH24-01 0.5' (885-2613-5). The sample(s) shows evidence of matrix interference.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-3047 and analytical batch 885-3182 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015D_DRO: The following samples were diluted due to the nature of the sample matrix: BH24-04 0.5' (885-2613-4), BH24-01 0.5' (885-2613-5), BH24-04 2' (885-2613-8) and BH24-04 4' (885-2613-9). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Method 8015D_DRO: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for preparation batch 885-3047 and analytical batch 885-3263 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

Method 8015D_DRO: The following samples were diluted due to 1/10th, the nature of the sample matrix OR abundance of target analytes OR abundance of non-target analytes: BH24-02 0.5' (885-2613-6), BH24-03 0.5' (885-2613-7) and BH24-07 0.5' (885-2613-16). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D - Soluble: The Chloride matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-78020 and 880-78020 and analytical batch 880-78093 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

BH24-04 7' (885-2613-11), BH24-05 0.5' (885-2613-12), BH24-05 2' (885-2613-13), BH24-06 2' (885-2613-15), BH24-07 0.5' (885-2613-16), BH24-07 2' (885-2613-17), BH24-08 0.5' (885-2613-18), BH24-08 2' (885-2613-19), (885-2613-B-11-B MS) and (885-2613-B-11-C MSD)

Case Narrative

Client: Vertex
Project: SDE 31 Federal CTB

Job ID: 885-2613-1

Job ID: 885-2613-1 (Continued) Eurofins Albuquerque

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-01 2'

Date Collected: 04/04/24 10:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-1

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/10/24 12:54	04/11/24 23:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*15 - 244*	*04/10/24 12:54*	*04/11/24 23:13*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/10/24 12:54	04/11/24 23:13	1
Ethylbenzene	ND		0.049		mg/Kg		04/10/24 12:54	04/11/24 23:13	1
Toluene	ND		0.049		mg/Kg		04/10/24 12:54	04/11/24 23:13	1
Xylenes, Total	ND		0.098		mg/Kg		04/10/24 12:54	04/11/24 23:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/10/24 12:54*	*04/11/24 23:13*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**290**		9.6		mg/Kg		04/10/24 14:37	04/11/24 18:13	1
Motor Oil Range Organics [C28-C40]	**200**		48		mg/Kg		04/10/24 14:37	04/11/24 18:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*	*04/10/24 14:37*	*04/11/24 18:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**950**		5.1		mg/Kg			04/13/24 04:50	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-02 2'

Date Collected: 04/04/24 11:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-2

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/10/24 12:54	04/11/24 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/10/24 12:54*	*04/11/24 23:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/10/24 12:54	04/11/24 23:37	1
Ethylbenzene	ND		0.050		mg/Kg		04/10/24 12:54	04/11/24 23:37	1
Toluene	ND		0.050		mg/Kg		04/10/24 12:54	04/11/24 23:37	1
Xylenes, Total	ND		0.099		mg/Kg		04/10/24 12:54	04/11/24 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*39 - 146*	*04/10/24 12:54*	*04/11/24 23:37*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**68**		8.8		mg/Kg		04/10/24 14:37	04/11/24 18:37	1
Motor Oil Range Organics [C28-C40]	**170**		44		mg/Kg		04/10/24 14:37	04/11/24 18:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*80*		*62 - 134*	*04/10/24 14:37*	*04/11/24 18:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**320**		5.0		mg/Kg			04/13/24 05:04	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-03 2'

Date Collected: 04/04/24 11:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-3

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/10/24 12:54	04/12/24 00:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*15 - 244*	*04/10/24 12:54*	*04/12/24 00:01*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/10/24 12:54	04/12/24 00:01	1
Ethylbenzene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 00:01	1
Toluene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 00:01	1
Xylenes, Total	ND		0.098		mg/Kg		04/10/24 12:54	04/12/24 00:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*39 - 146*	*04/10/24 12:54*	*04/12/24 00:01*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		04/10/24 14:37	04/11/24 20:14	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		04/10/24 14:37	04/11/24 20:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*117*		*62 - 134*	*04/10/24 14:37*	*04/11/24 20:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2100**		25		mg/Kg			04/13/24 05:09	5

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 0.5'
Date Collected: 04/04/24 12:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-4
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/10/24 12:54	04/12/24 00:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/10/24 12:54*	*04/12/24 00:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/10/24 12:54	04/12/24 00:48	1
Ethylbenzene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 00:48	1
Toluene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 00:48	1
Xylenes, Total	ND		0.094		mg/Kg		04/10/24 12:54	04/12/24 00:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*39 - 146*	*04/10/24 12:54*	*04/12/24 00:48*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**14000**		470		mg/Kg		04/10/24 14:37	04/11/24 15:01	50
Motor Oil Range Organics [C28-C40]	**7000**		2300		mg/Kg		04/10/24 14:37	04/11/24 15:01	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*D S1-*	*62 - 134*	*04/10/24 14:37*	*04/11/24 15:01*	*50*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8700**		50		mg/Kg			04/13/24 05:14	10

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-01 0.5'

Date Collected: 04/05/24 09:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-5

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	120		4.6		mg/Kg		04/10/24 12:54	04/12/24 01:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*534*	*S1+*	*15 - 244*	*04/10/24 12:54*	*04/12/24 01:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/10/24 12:54	04/12/24 01:12	1
Ethylbenzene	ND		0.046		mg/Kg		04/10/24 12:54	04/12/24 01:12	1
Toluene	ND		0.046		mg/Kg		04/10/24 12:54	04/12/24 01:12	1
Xylenes, Total	0.93		0.092		mg/Kg		04/10/24 12:54	04/12/24 01:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*39 - 146*	*04/10/24 12:54*	*04/12/24 01:12*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	12000		480		mg/Kg		04/10/24 14:37	04/11/24 15:25	50
Motor Oil Range Organics [C28-C40]	7200		2400		mg/Kg		04/10/24 14:37	04/11/24 15:25	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*04/10/24 14:37*	*04/11/24 15:25*	*50*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2500		25		mg/Kg			04/13/24 05:18	5

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-02 0.5'
Date Collected: 04/05/24 09:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-6
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/10/24 12:54	04/12/24 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*142*		*15 - 244*	*04/10/24 12:54*	*04/12/24 17:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/10/24 12:54	04/12/24 01:35	1
Ethylbenzene	ND		0.048		mg/Kg		04/10/24 12:54	04/12/24 01:35	1
Toluene	ND		0.048		mg/Kg		04/10/24 12:54	04/12/24 01:35	1
Xylenes, Total	ND		0.097		mg/Kg		04/10/24 12:54	04/12/24 01:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*39 - 146*	*04/10/24 12:54*	*04/12/24 01:35*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1700**		89		mg/Kg		04/10/24 14:37	04/12/24 12:46	10
Motor Oil Range Organics [C28-C40]	**1100**		450		mg/Kg		04/10/24 14:37	04/12/24 12:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*D S1-*	*62 - 134*	*04/10/24 14:37*	*04/12/24 12:46*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		5.0		mg/Kg			04/13/24 05:33	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-03 0.5'

Date Collected: 04/05/24 09:20
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-7

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/10/24 12:54	04/12/24 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*15 - 244*	*04/10/24 12:54*	*04/12/24 01:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/10/24 12:54	04/12/24 01:59	1
Ethylbenzene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 01:59	1
Toluene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 01:59	1
Xylenes, Total	ND		0.094		mg/Kg		04/10/24 12:54	04/12/24 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*39 - 146*	*04/10/24 12:54*	*04/12/24 01:59*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**750**		89		mg/Kg		04/10/24 14:37	04/12/24 13:34	10
Motor Oil Range Organics [C28-C40]	**1200**		440		mg/Kg		04/10/24 14:37	04/12/24 13:34	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*D S1-*	*62 - 134*	*04/10/24 14:37*	*04/12/24 13:34*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5300**		50		mg/Kg			04/13/24 05:38	10

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 2'

Date Collected: 04/05/24 09:30
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-8

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/10/24 12:54	04/12/24 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*15 - 244*	*04/10/24 12:54*	*04/12/24 02:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/10/24 12:54	04/12/24 02:22	1
Ethylbenzene	ND		0.048		mg/Kg		04/10/24 12:54	04/12/24 02:22	1
Toluene	ND		0.048		mg/Kg		04/10/24 12:54	04/12/24 02:22	1
Xylenes, Total	ND		0.096		mg/Kg		04/10/24 12:54	04/12/24 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*39 - 146*	*04/10/24 12:54*	*04/12/24 02:22*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1300**		170		mg/Kg		04/10/24 14:37	04/11/24 16:37	20
Motor Oil Range Organics [C28-C40]	**1200**		870		mg/Kg		04/10/24 14:37	04/11/24 16:37	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*04/10/24 14:37*	*04/11/24 16:37*	*20*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4100**		50		mg/Kg			04/13/24 05:43	10

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 4'
Date Collected: 04/05/24 09:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-9
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/10/24 12:54	04/12/24 02:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*15 - 244*	*04/10/24 12:54*	*04/12/24 02:46*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/10/24 12:54	04/12/24 02:46	1
Ethylbenzene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 02:46	1
Toluene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 02:46	1
Xylenes, Total	ND		0.098		mg/Kg		04/10/24 12:54	04/12/24 02:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*39 - 146*	*04/10/24 12:54*	*04/12/24 02:46*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**2500**		190		mg/Kg		04/10/24 14:37	04/11/24 17:25	20
Motor Oil Range Organics [C28-C40]	**2200**		960		mg/Kg		04/10/24 14:37	04/11/24 17:25	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*04/10/24 14:37*	*04/11/24 17:25*	*20*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3900**		25		mg/Kg			04/13/24 05:47	5

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 6'

Date Collected: 04/05/24 09:50
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-10

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/10/24 12:54	04/12/24 03:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*15 - 244*	*04/10/24 12:54*	*04/12/24 03:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/10/24 12:54	04/12/24 03:10	1
Ethylbenzene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 03:10	1
Toluene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 03:10	1
Xylenes, Total	ND		0.098		mg/Kg		04/10/24 12:54	04/12/24 03:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/10/24 12:54*	*04/12/24 03:10*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		04/10/24 14:37	04/11/24 20:38	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/10/24 14:37	04/11/24 20:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*84*		*62 - 134*	*04/10/24 14:37*	*04/11/24 20:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1700**		25		mg/Kg			04/13/24 05:52	5

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 7'

Date Collected: 04/05/24 10:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-11

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/10/24 12:54	04/12/24 03:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*15 - 244*	*04/10/24 12:54*	*04/12/24 03:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/10/24 12:54	04/12/24 03:33	1
Ethylbenzene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 03:33	1
Toluene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 03:33	1
Xylenes, Total	ND		0.093		mg/Kg		04/10/24 12:54	04/12/24 03:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*39 - 146*	*04/10/24 12:54*	*04/12/24 03:33*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**220**		10		mg/Kg		04/10/24 14:37	04/12/24 14:22	1
Motor Oil Range Organics [C28-C40]	**150**		50		mg/Kg		04/10/24 14:37	04/12/24 14:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*04/10/24 14:37*	*04/12/24 14:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9600**	**F1**	50		mg/Kg			04/13/24 05:57	10

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-05 0.5'
Date Collected: 04/05/24 13:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-12
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/10/24 12:54	04/12/24 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/10/24 12:54*	*04/12/24 03:57*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/10/24 12:54	04/12/24 03:57	1
Ethylbenzene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 03:57	1
Toluene	ND		0.047		mg/Kg		04/10/24 12:54	04/12/24 03:57	1
Xylenes, Total	ND		0.094		mg/Kg		04/10/24 12:54	04/12/24 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*39 - 146*	*04/10/24 12:54*	*04/12/24 03:57*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		04/10/24 14:37	04/11/24 21:02	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/10/24 14:37	04/11/24 21:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*04/10/24 14:37*	*04/11/24 21:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4600**		50		mg/Kg			04/13/24 06:11	10

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-05 2'

Date Collected: 04/05/24 13:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-13

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/10/24 12:54	04/12/24 04:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*15 - 244*	*04/10/24 12:54*	*04/12/24 04:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/10/24 12:54	04/12/24 04:20	1
Ethylbenzene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 04:20	1
Toluene	ND		0.049		mg/Kg		04/10/24 12:54	04/12/24 04:20	1
Xylenes, Total	ND		0.097		mg/Kg		04/10/24 12:54	04/12/24 04:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*39 - 146*	*04/10/24 12:54*	*04/12/24 04:20*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	F2	8.7		mg/Kg		04/10/24 14:37	04/11/24 21:26	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		04/10/24 14:37	04/11/24 21:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*107*		*62 - 134*	*04/10/24 14:37*	*04/11/24 21:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4500**		25		mg/Kg			04/13/24 06:16	5

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-06 0.5'

Date Collected: 04/05/24 13:20
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-14

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.6		mg/Kg		04/11/24 13:02	04/13/24 00:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*15 - 244*	*04/11/24 13:02*	*04/13/24 00:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/11/24 13:02	04/13/24 00:47	1
Ethylbenzene	ND		0.046		mg/Kg		04/11/24 13:02	04/13/24 00:47	1
Toluene	ND		0.046		mg/Kg		04/11/24 13:02	04/13/24 00:47	1
Xylenes, Total	ND		0.093		mg/Kg		04/11/24 13:02	04/13/24 00:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*39 - 146*	*04/11/24 13:02*	*04/13/24 00:47*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.7		mg/Kg		04/11/24 14:31	04/12/24 20:01	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		04/11/24 14:31	04/12/24 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*76*		*62 - 134*	*04/11/24 14:31*	*04/12/24 20:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**16**		5.0		mg/Kg			04/23/24 18:57	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-06 2'

Date Collected: 04/05/24 13:30
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-15

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/11/24 13:02	04/13/24 01:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*15 - 244*	*04/11/24 13:02*	*04/13/24 01:11*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/11/24 13:02	04/13/24 01:11	1
Ethylbenzene	ND		0.047		mg/Kg		04/11/24 13:02	04/13/24 01:11	1
Toluene	ND		0.047		mg/Kg		04/11/24 13:02	04/13/24 01:11	1
Xylenes, Total	ND		0.094		mg/Kg		04/11/24 13:02	04/13/24 01:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/11/24 13:02*	*04/13/24 01:11*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**15**		9.3		mg/Kg		04/11/24 14:31	04/12/24 20:25	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/11/24 14:31	04/12/24 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*66*		*62 - 134*	*04/11/24 14:31*	*04/12/24 20:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**52**		5.0		mg/Kg			04/13/24 06:31	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-07 0.5'

Date Collected: 04/05/24 13:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-16

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		04/11/24 13:02	04/13/24 01:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*15 - 244*	*04/11/24 13:02*	*04/13/24 01:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/11/24 13:02	04/13/24 01:34	1
Ethylbenzene	ND		0.048		mg/Kg		04/11/24 13:02	04/13/24 01:34	1
Toluene	ND		0.048		mg/Kg		04/11/24 13:02	04/13/24 01:34	1
Xylenes, Total	ND		0.096		mg/Kg		04/11/24 13:02	04/13/24 01:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/11/24 13:02*	*04/13/24 01:34*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**14**		9.3		mg/Kg		04/11/24 14:31	04/12/24 15:34	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/11/24 14:31	04/12/24 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*73*		*62 - 134*	*04/11/24 14:31*	*04/12/24 15:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		5.1		mg/Kg			04/13/24 06:36	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-07 2'

Date Collected: 04/05/24 13:50
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-17

Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/11/24 13:02	04/13/24 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*15 - 244*	*04/11/24 13:02*	*04/13/24 01:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		04/11/24 13:02	04/13/24 01:58	1
Ethylbenzene	ND		0.047		mg/Kg		04/11/24 13:02	04/13/24 01:58	1
Toluene	ND		0.047		mg/Kg		04/11/24 13:02	04/13/24 01:58	1
Xylenes, Total	ND		0.095		mg/Kg		04/11/24 13:02	04/13/24 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*39 - 146*	*04/11/24 13:02*	*04/13/24 01:58*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		04/11/24 14:31	04/12/24 20:49	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/11/24 14:31	04/12/24 20:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*133*		*62 - 134*	*04/11/24 14:31*	*04/12/24 20:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**31**		5.1		mg/Kg			04/13/24 06:40	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-08 0.5'
Date Collected: 04/05/24 14:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-18
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		04/11/24 13:02	04/13/24 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/11/24 13:02*	*04/13/24 02:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		04/11/24 13:02	04/13/24 02:21	1
Ethylbenzene	ND		0.047		mg/Kg		04/11/24 13:02	04/13/24 02:21	1
Toluene	ND		0.047		mg/Kg		04/11/24 13:02	04/13/24 02:21	1
Xylenes, Total	ND		0.094		mg/Kg		04/11/24 13:02	04/13/24 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*39 - 146*	*04/11/24 13:02*	*04/13/24 02:21*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		04/11/24 14:31	04/12/24 21:14	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		04/11/24 14:31	04/12/24 21:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*04/11/24 14:31*	*04/12/24 21:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		5.0		mg/Kg			04/13/24 06:45	1

Client Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-08 2'
Date Collected: 04/05/24 14:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-19
Matrix: Solid

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.9		mg/Kg		04/11/24 13:02	04/13/24 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*15 - 244*	*04/11/24 13:02*	*04/13/24 02:45*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/11/24 13:02	04/13/24 02:45	1
Ethylbenzene	ND		0.049		mg/Kg		04/11/24 13:02	04/13/24 02:45	1
Toluene	ND		0.049		mg/Kg		04/11/24 13:02	04/13/24 02:45	1
Xylenes, Total	ND		0.098		mg/Kg		04/11/24 13:02	04/13/24 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*39 - 146*	*04/11/24 13:02*	*04/13/24 02:45*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		04/11/24 14:31	04/12/24 21:38	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		04/11/24 14:31	04/12/24 21:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*04/11/24 14:31*	*04/12/24 21:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41**		5.0		mg/Kg			04/13/24 06:50	1

QC Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-3040/1-A
Matrix: Solid
Analysis Batch: 3180

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3040

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/10/24 12:54	04/11/24 15:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/10/24 12:54*	*04/11/24 15:46*	*1*

Lab Sample ID: LCS 885-3040/2-A
Matrix: Solid
Analysis Batch: 3180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3040

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	26.2		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*208*		*15 - 244*

Lab Sample ID: MB 885-3124/1-A
Matrix: Solid
Analysis Batch: 3291

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3124

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		04/11/24 13:02	04/12/24 15:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*15 - 244*	*04/11/24 13:02*	*04/12/24 15:25*	*1*

Lab Sample ID: LCS 885-3124/2-A
Matrix: Solid
Analysis Batch: 3291

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3124

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	25.5		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*209*		*15 - 244*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-3040/1-A
Matrix: Solid
Analysis Batch: 3181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3040

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		04/10/24 12:54	04/11/24 15:46	1
Ethylbenzene	ND		0.050		mg/Kg		04/10/24 12:54	04/11/24 15:46	1
Toluene	ND		0.050		mg/Kg		04/10/24 12:54	04/11/24 15:46	1
Xylenes, Total	ND		0.10		mg/Kg		04/10/24 12:54	04/11/24 15:46	1

QC Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-3040/1-A
Matrix: Solid
Analysis Batch: 3181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3040

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		39 - 146	04/10/24 12:54	04/11/24 15:46	1

Lab Sample ID: LCS 885-3040/3-A
Matrix: Solid
Analysis Batch: 3181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3040

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.777		mg/Kg		78	70 - 130
Ethylbenzene	1.00	0.811		mg/Kg		81	70 - 130
m,p-Xylene	2.00	1.66		mg/Kg		83	70 - 130
o-Xylene	1.00	0.808		mg/Kg		81	70 - 130
Toluene	1.00	0.794		mg/Kg		79	70 - 130
Xylenes, Total	3.00	2.47		mg/Kg		82	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		39 - 146

Lab Sample ID: MB 885-3124/1-A
Matrix: Solid
Analysis Batch: 3292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3124

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		04/11/24 13:02	04/12/24 15:25	1
Ethylbenzene	ND		0.050	mg/Kg		04/11/24 13:02	04/12/24 15:25	1
Toluene	ND		0.050	mg/Kg		04/11/24 13:02	04/12/24 15:25	1
Xylenes, Total	ND		0.10	mg/Kg		04/11/24 13:02	04/12/24 15:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		39 - 146	04/11/24 13:02	04/12/24 15:25	1

Lab Sample ID: LCS 885-3124/3-A
Matrix: Solid
Analysis Batch: 3292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.805		mg/Kg		80	70 - 130
Ethylbenzene	1.00	0.832		mg/Kg		83	70 - 130
m,p-Xylene	2.00	1.69		mg/Kg		84	70 - 130
o-Xylene	1.00	0.825		mg/Kg		82	70 - 130
Toluene	1.00	0.816		mg/Kg		82	70 - 130
Xylenes, Total	3.00	2.51		mg/Kg		84	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	87		39 - 146

QC Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-3047/1-A
Matrix: Solid
Analysis Batch: 3182

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3047

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/10/24 14:37	04/11/24 11:49	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/10/24 14:37	04/11/24 11:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*04/10/24 14:37*	*04/11/24 11:49*	*1*

Lab Sample ID: LCS 885-3047/2-A
Matrix: Solid
Analysis Batch: 3182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3047

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	50.6		mg/Kg		101	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*

Lab Sample ID: 885-2613-13 MS
Matrix: Solid
Analysis Batch: 3182

Client Sample ID: BH24-05 2'
Prep Type: Total/NA
Prep Batch: 3047

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND	F2	47.1	37.3		mg/Kg		79	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*77*		*62 - 134*

Lab Sample ID: 885-2613-13 MSD
Matrix: Solid
Analysis Batch: 3182

Client Sample ID: BH24-05 2'
Prep Type: Total/NA
Prep Batch: 3047

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND	F2	47.0	52.1	F2	mg/Kg		111	44 - 136	33	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*

Lab Sample ID: MB 885-3140/1-A
Matrix: Solid
Analysis Batch: 3263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3140

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/11/24 14:31	04/12/24 11:10	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/11/24 14:31	04/12/24 11:10	1

QC Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Method: 8015D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-3140/1-A
Matrix: Solid
Analysis Batch: 3263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3140

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	121		62 - 134	04/11/24 14:31	04/12/24 11:10	1

Lab Sample ID: LCS 885-3140/2-A
Matrix: Solid
Analysis Batch: 3263

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3140

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	52.3		mg/Kg		105	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	102		62 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-78020/1-A
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			04/13/24 04:35	1

Lab Sample ID: LCS 880-78020/2-A
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	272		mg/Kg		109	90 - 110		

Lab Sample ID: LCSD 880-78020/3-A
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	272		mg/Kg		109	90 - 110	0	20

Lab Sample ID: 885-2613-1 MS
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: BH24-01 2'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	950		253	1200		mg/Kg		96	90 - 110		

Lab Sample ID: 885-2613-1 MSD
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: BH24-01 2'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	950		253	1200		mg/Kg		96	90 - 110	0	20

QC Sample Results

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 885-2613-11 MS
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: BH24-04 7'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	9600	F1	2480	13100	F1	mg/Kg		141	90 - 110		

Lab Sample ID: 885-2613-11 MSD
Matrix: Solid
Analysis Batch: 78093

Client Sample ID: BH24-04 7'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	9600	F1	2480	13000	F1	mg/Kg		140	90 - 110	0	20

Lab Sample ID: MB 880-79018/1-A
Matrix: Solid
Analysis Batch: 79074

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			04/23/24 16:32	1

Lab Sample ID: LCS 880-79018/2-A
Matrix: Solid
Analysis Batch: 79074

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	243		mg/Kg		97	90 - 110		

Lab Sample ID: LCSD 880-79018/3-A
Matrix: Solid
Analysis Batch: 79074

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	243		mg/Kg		97	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

GC VOA

Prep Batch: 3040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Total/NA	Solid	5030C	
885-2613-2	BH24-02 2'	Total/NA	Solid	5030C	
885-2613-3	BH24-03 2'	Total/NA	Solid	5030C	
885-2613-4	BH24-04 0.5'	Total/NA	Solid	5030C	
885-2613-5	BH24-01 0.5'	Total/NA	Solid	5030C	
885-2613-6	BH24-02 0.5'	Total/NA	Solid	5030C	
885-2613-7	BH24-03 0.5'	Total/NA	Solid	5030C	
885-2613-8	BH24-04 2'	Total/NA	Solid	5030C	
885-2613-9	BH24-04 4'	Total/NA	Solid	5030C	
885-2613-10	BH24-04 6'	Total/NA	Solid	5030C	
885-2613-11	BH24-04 7'	Total/NA	Solid	5030C	
885-2613-12	BH24-05 0.5'	Total/NA	Solid	5030C	
885-2613-13	BH24-05 2'	Total/NA	Solid	5030C	
MB 885-3040/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-3040/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-3040/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 3124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-14	BH24-06 0.5'	Total/NA	Solid	5030C	
885-2613-15	BH24-06 2'	Total/NA	Solid	5030C	
885-2613-16	BH24-07 0.5'	Total/NA	Solid	5030C	
885-2613-17	BH24-07 2'	Total/NA	Solid	5030C	
885-2613-18	BH24-08 0.5'	Total/NA	Solid	5030C	
885-2613-19	BH24-08 2'	Total/NA	Solid	5030C	
MB 885-3124/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-3124/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-3124/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 3180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Total/NA	Solid	8015D	3040
885-2613-2	BH24-02 2'	Total/NA	Solid	8015D	3040
885-2613-3	BH24-03 2'	Total/NA	Solid	8015D	3040
885-2613-4	BH24-04 0.5'	Total/NA	Solid	8015D	3040
885-2613-5	BH24-01 0.5'	Total/NA	Solid	8015D	3040
885-2613-7	BH24-03 0.5'	Total/NA	Solid	8015D	3040
885-2613-8	BH24-04 2'	Total/NA	Solid	8015D	3040
885-2613-9	BH24-04 4'	Total/NA	Solid	8015D	3040
885-2613-10	BH24-04 6'	Total/NA	Solid	8015D	3040
885-2613-11	BH24-04 7'	Total/NA	Solid	8015D	3040
885-2613-12	BH24-05 0.5'	Total/NA	Solid	8015D	3040
885-2613-13	BH24-05 2'	Total/NA	Solid	8015D	3040
MB 885-3040/1-A	Method Blank	Total/NA	Solid	8015D	3040
LCS 885-3040/2-A	Lab Control Sample	Total/NA	Solid	8015D	3040

Analysis Batch: 3181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Total/NA	Solid	8021B	3040
885-2613-2	BH24-02 2'	Total/NA	Solid	8021B	3040
885-2613-3	BH24-03 2'	Total/NA	Solid	8021B	3040

QC Association Summary

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

GC VOA (Continued)

Analysis Batch: 3181 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-4	BH24-04 0.5'	Total/NA	Solid	8021B	3040
885-2613-5	BH24-01 0.5'	Total/NA	Solid	8021B	3040
885-2613-6	BH24-02 0.5'	Total/NA	Solid	8021B	3040
885-2613-7	BH24-03 0.5'	Total/NA	Solid	8021B	3040
885-2613-8	BH24-04 2'	Total/NA	Solid	8021B	3040
885-2613-9	BH24-04 4'	Total/NA	Solid	8021B	3040
885-2613-10	BH24-04 6'	Total/NA	Solid	8021B	3040
885-2613-11	BH24-04 7'	Total/NA	Solid	8021B	3040
885-2613-12	BH24-05 0.5'	Total/NA	Solid	8021B	3040
885-2613-13	BH24-05 2'	Total/NA	Solid	8021B	3040
MB 885-3040/1-A	Method Blank	Total/NA	Solid	8021B	3040
LCS 885-3040/3-A	Lab Control Sample	Total/NA	Solid	8021B	3040

Analysis Batch: 3291

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-6	BH24-02 0.5'	Total/NA	Solid	8015D	3040
885-2613-14	BH24-06 0.5'	Total/NA	Solid	8015D	3124
885-2613-15	BH24-06 2'	Total/NA	Solid	8015D	3124
885-2613-16	BH24-07 0.5'	Total/NA	Solid	8015D	3124
885-2613-17	BH24-07 2'	Total/NA	Solid	8015D	3124
885-2613-18	BH24-08 0.5'	Total/NA	Solid	8015D	3124
885-2613-19	BH24-08 2'	Total/NA	Solid	8015D	3124
MB 885-3124/1-A	Method Blank	Total/NA	Solid	8015D	3124
LCS 885-3124/2-A	Lab Control Sample	Total/NA	Solid	8015D	3124

Analysis Batch: 3292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-14	BH24-06 0.5'	Total/NA	Solid	8021B	3124
885-2613-15	BH24-06 2'	Total/NA	Solid	8021B	3124
885-2613-16	BH24-07 0.5'	Total/NA	Solid	8021B	3124
885-2613-17	BH24-07 2'	Total/NA	Solid	8021B	3124
885-2613-18	BH24-08 0.5'	Total/NA	Solid	8021B	3124
885-2613-19	BH24-08 2'	Total/NA	Solid	8021B	3124
MB 885-3124/1-A	Method Blank	Total/NA	Solid	8021B	3124
LCS 885-3124/3-A	Lab Control Sample	Total/NA	Solid	8021B	3124

GC Semi VOA

Prep Batch: 3047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Total/NA	Solid	SHAKE	
885-2613-2	BH24-02 2'	Total/NA	Solid	SHAKE	
885-2613-3	BH24-03 2'	Total/NA	Solid	SHAKE	
885-2613-4	BH24-04 0.5'	Total/NA	Solid	SHAKE	
885-2613-5	BH24-01 0.5'	Total/NA	Solid	SHAKE	
885-2613-6	BH24-02 0.5'	Total/NA	Solid	SHAKE	
885-2613-7	BH24-03 0.5'	Total/NA	Solid	SHAKE	
885-2613-8	BH24-04 2'	Total/NA	Solid	SHAKE	
885-2613-9	BH24-04 4'	Total/NA	Solid	SHAKE	
885-2613-10	BH24-04 6'	Total/NA	Solid	SHAKE	
885-2613-11	BH24-04 7'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

GC Semi VOA (Continued)

Prep Batch: 3047 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-12	BH24-05 0.5'	Total/NA	Solid	SHAKE	
885-2613-13	BH24-05 2'	Total/NA	Solid	SHAKE	
MB 885-3047/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-3047/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-2613-13 MS	BH24-05 2'	Total/NA	Solid	SHAKE	
885-2613-13 MSD	BH24-05 2'	Total/NA	Solid	SHAKE	

Prep Batch: 3140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-14	BH24-06 0.5'	Total/NA	Solid	SHAKE	
885-2613-15	BH24-06 2'	Total/NA	Solid	SHAKE	
885-2613-16	BH24-07 0.5'	Total/NA	Solid	SHAKE	
885-2613-17	BH24-07 2'	Total/NA	Solid	SHAKE	
885-2613-18	BH24-08 0.5'	Total/NA	Solid	SHAKE	
885-2613-19	BH24-08 2'	Total/NA	Solid	SHAKE	
MB 885-3140/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-3140/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 3182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Total/NA	Solid	8015D	3047
885-2613-2	BH24-02 2'	Total/NA	Solid	8015D	3047
885-2613-3	BH24-03 2'	Total/NA	Solid	8015D	3047
885-2613-4	BH24-04 0.5'	Total/NA	Solid	8015D	3047
885-2613-5	BH24-01 0.5'	Total/NA	Solid	8015D	3047
885-2613-8	BH24-04 2'	Total/NA	Solid	8015D	3047
885-2613-9	BH24-04 4'	Total/NA	Solid	8015D	3047
885-2613-10	BH24-04 6'	Total/NA	Solid	8015D	3047
885-2613-12	BH24-05 0.5'	Total/NA	Solid	8015D	3047
885-2613-13	BH24-05 2'	Total/NA	Solid	8015D	3047
MB 885-3047/1-A	Method Blank	Total/NA	Solid	8015D	3047
LCS 885-3047/2-A	Lab Control Sample	Total/NA	Solid	8015D	3047
885-2613-13 MS	BH24-05 2'	Total/NA	Solid	8015D	3047
885-2613-13 MSD	BH24-05 2'	Total/NA	Solid	8015D	3047

Analysis Batch: 3263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-6	BH24-02 0.5'	Total/NA	Solid	8015D	3047
885-2613-7	BH24-03 0.5'	Total/NA	Solid	8015D	3047
885-2613-11	BH24-04 7'	Total/NA	Solid	8015D	3047
885-2613-14	BH24-06 0.5'	Total/NA	Solid	8015D	3140
885-2613-15	BH24-06 2'	Total/NA	Solid	8015D	3140
885-2613-16	BH24-07 0.5'	Total/NA	Solid	8015D	3140
885-2613-17	BH24-07 2'	Total/NA	Solid	8015D	3140
885-2613-18	BH24-08 0.5'	Total/NA	Solid	8015D	3140
885-2613-19	BH24-08 2'	Total/NA	Solid	8015D	3140
MB 885-3140/1-A	Method Blank	Total/NA	Solid	8015D	3140
LCS 885-3140/2-A	Lab Control Sample	Total/NA	Solid	8015D	3140

QC Association Summary

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

HPLC/IC

Leach Batch: 78020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Soluble	Solid	DI Leach	
885-2613-2	BH24-02 2'	Soluble	Solid	DI Leach	
885-2613-3	BH24-03 2'	Soluble	Solid	DI Leach	
885-2613-4	BH24-04 0.5'	Soluble	Solid	DI Leach	
885-2613-5	BH24-01 0.5'	Soluble	Solid	DI Leach	
885-2613-6	BH24-02 0.5'	Soluble	Solid	DI Leach	
885-2613-7	BH24-03 0.5'	Soluble	Solid	DI Leach	
885-2613-8	BH24-04 2'	Soluble	Solid	DI Leach	
885-2613-9	BH24-04 4'	Soluble	Solid	DI Leach	
885-2613-10	BH24-04 6'	Soluble	Solid	DI Leach	
885-2613-11	BH24-04 7'	Soluble	Solid	DI Leach	
885-2613-12	BH24-05 0.5'	Soluble	Solid	DI Leach	
885-2613-13	BH24-05 2'	Soluble	Solid	DI Leach	
885-2613-15	BH24-06 2'	Soluble	Solid	DI Leach	
885-2613-16	BH24-07 0.5'	Soluble	Solid	DI Leach	
885-2613-17	BH24-07 2'	Soluble	Solid	DI Leach	
885-2613-18	BH24-08 0.5'	Soluble	Solid	DI Leach	
885-2613-19	BH24-08 2'	Soluble	Solid	DI Leach	
MB 880-78020/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-78020/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-78020/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
885-2613-1 MS	BH24-01 2'	Soluble	Solid	DI Leach	
885-2613-1 MSD	BH24-01 2'	Soluble	Solid	DI Leach	
885-2613-11 MS	BH24-04 7'	Soluble	Solid	DI Leach	
885-2613-11 MSD	BH24-04 7'	Soluble	Solid	DI Leach	

Analysis Batch: 78093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-1	BH24-01 2'	Soluble	Solid	300.0	78020
885-2613-2	BH24-02 2'	Soluble	Solid	300.0	78020
885-2613-3	BH24-03 2'	Soluble	Solid	300.0	78020
885-2613-4	BH24-04 0.5'	Soluble	Solid	300.0	78020
885-2613-5	BH24-01 0.5'	Soluble	Solid	300.0	78020
885-2613-6	BH24-02 0.5'	Soluble	Solid	300.0	78020
885-2613-7	BH24-03 0.5'	Soluble	Solid	300.0	78020
885-2613-8	BH24-04 2'	Soluble	Solid	300.0	78020
885-2613-9	BH24-04 4'	Soluble	Solid	300.0	78020
885-2613-10	BH24-04 6'	Soluble	Solid	300.0	78020
885-2613-11	BH24-04 7'	Soluble	Solid	300.0	78020
885-2613-12	BH24-05 0.5'	Soluble	Solid	300.0	78020
885-2613-13	BH24-05 2'	Soluble	Solid	300.0	78020
885-2613-15	BH24-06 2'	Soluble	Solid	300.0	78020
885-2613-16	BH24-07 0.5'	Soluble	Solid	300.0	78020
885-2613-17	BH24-07 2'	Soluble	Solid	300.0	78020
885-2613-18	BH24-08 0.5'	Soluble	Solid	300.0	78020
885-2613-19	BH24-08 2'	Soluble	Solid	300.0	78020
MB 880-78020/1-A	Method Blank	Soluble	Solid	300.0	78020
LCS 880-78020/2-A	Lab Control Sample	Soluble	Solid	300.0	78020
LCSD 880-78020/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	78020
885-2613-1 MS	BH24-01 2'	Soluble	Solid	300.0	78020
885-2613-1 MSD	BH24-01 2'	Soluble	Solid	300.0	78020

QC Association Summary

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

HPLC/IC (Continued)

Analysis Batch: 78093 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-11 MS	BH24-04 7'	Soluble	Solid	300.0	78020
885-2613-11 MSD	BH24-04 7'	Soluble	Solid	300.0	78020

Leach Batch: 79018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-14	BH24-06 0.5'	Soluble	Solid	DI Leach	
MB 880-79018/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-79018/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-79018/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 79074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2613-14	BH24-06 0.5'	Soluble	Solid	300.0	79018
MB 880-79018/1-A	Method Blank	Soluble	Solid	300.0	79018
LCS 880-79018/2-A	Lab Control Sample	Soluble	Solid	300.0	79018
LCSD 880-79018/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	79018

Lab Chronicle

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-01 2'
Date Collected: 04/04/24 10:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/11/24 23:13
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/11/24 23:13
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3182	JU	EET ALB	04/11/24 18:13
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 04:50

Client Sample ID: BH24-02 2'
Date Collected: 04/04/24 11:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/11/24 23:37
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/11/24 23:37
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3182	JU	EET ALB	04/11/24 18:37
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 05:04

Client Sample ID: BH24-03 2'
Date Collected: 04/04/24 11:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 00:01
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 00:01
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3182	JU	EET ALB	04/11/24 20:14
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		5	78093	SMC	EET MID	04/13/24 05:09

Client Sample ID: BH24-04 0.5'
Date Collected: 04/04/24 12:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 00:48

Lab Chronicle

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 0.5'
Date Collected: 04/04/24 12:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 00:48
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		50	3182	JU	EET ALB	04/11/24 15:01
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		10	78093	SMC	EET MID	04/13/24 05:14

Client Sample ID: BH24-01 0.5'
Date Collected: 04/05/24 09:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 01:12
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 01:12
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		50	3182	JU	EET ALB	04/11/24 15:25
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		5	78093	SMC	EET MID	04/13/24 05:18

Client Sample ID: BH24-02 0.5'
Date Collected: 04/05/24 09:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/12/24 17:22
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 01:35
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		10	3263	JU	EET ALB	04/12/24 12:46
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 05:33

Client Sample ID: BH24-03 0.5'
Date Collected: 04/05/24 09:20
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 01:59
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 01:59

Lab Chronicle

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-03 0.5'
Date Collected: 04/05/24 09:20
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		10	3263	JU	EET ALB	04/12/24 13:34
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		10	78093	SMC	EET MID	04/13/24 05:38

Client Sample ID: BH24-04 2'
Date Collected: 04/05/24 09:30
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 02:22
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 02:22
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		20	3182	JU	EET ALB	04/11/24 16:37
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		10	78093	SMC	EET MID	04/13/24 05:43

Client Sample ID: BH24-04 4'
Date Collected: 04/05/24 09:40
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 02:46
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 02:46
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		20	3182	JU	EET ALB	04/11/24 17:25
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		5	78093	SMC	EET MID	04/13/24 05:47

Client Sample ID: BH24-04 6'
Date Collected: 04/05/24 09:50
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 03:10
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 03:10
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3182	JU	EET ALB	04/11/24 20:38

Lab Chronicle

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-04 6'
Date Collected: 04/05/24 09:50
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		5	78093	SMC	EET MID	04/13/24 05:52

Client Sample ID: BH24-04 7'
Date Collected: 04/05/24 10:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 03:33
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 03:33
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 14:22
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		10	78093	SMC	EET MID	04/13/24 05:57

Client Sample ID: BH24-05 0.5'
Date Collected: 04/05/24 13:00
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 03:57
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 03:57
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3182	JU	EET ALB	04/11/24 21:02
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		10	78093	SMC	EET MID	04/13/24 06:11

Client Sample ID: BH24-05 2'
Date Collected: 04/05/24 13:10
Date Received: 04/10/24 07:55

Lab Sample ID: 885-2613-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8015D		1	3180	JP	EET ALB	04/12/24 04:20
Total/NA	Prep	5030C			3040	JP	EET ALB	04/10/24 12:54
Total/NA	Analysis	8021B		1	3181	JP	EET ALB	04/12/24 04:20
Total/NA	Prep	SHAKE			3047	JU	EET ALB	04/10/24 14:37
Total/NA	Analysis	8015D		1	3182	JU	EET ALB	04/11/24 21:26
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		5	78093	SMC	EET MID	04/13/24 06:16

Lab Chronicle

Client: Vertex
Project/Site: SDE 31 Federal CTB

Job ID: 885-2613-1

Client Sample ID: BH24-06 0.5'
Lab Sample ID: 885-2613-14
Date Collected: 04/05/24 13:20
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/13/24 00:47
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8021B		1	3292	JP	EET ALB	04/13/24 00:47
Total/NA	Prep	SHAKE			3140	JU	EET ALB	04/11/24 14:31
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 20:01
Soluble	Leach	DI Leach			79018	SMC	EET MID	04/23/24 08:42
Soluble	Analysis	300.0		1	79074	SMC	EET MID	04/23/24 18:57

Client Sample ID: BH24-06 2'
Lab Sample ID: 885-2613-15
Date Collected: 04/05/24 13:30
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/13/24 01:11
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8021B		1	3292	JP	EET ALB	04/13/24 01:11
Total/NA	Prep	SHAKE			3140	JU	EET ALB	04/11/24 14:31
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 20:25
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 06:31

Client Sample ID: BH24-07 0.5'
Lab Sample ID: 885-2613-16
Date Collected: 04/05/24 13:40
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/13/24 01:34
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8021B		1	3292	JP	EET ALB	04/13/24 01:34
Total/NA	Prep	SHAKE			3140	JU	EET ALB	04/11/24 14:31
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 15:34
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 06:36

Client Sample ID: BH24-07 2'
Lab Sample ID: 885-2613-17
Date Collected: 04/05/24 13:50
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/13/24 01:58

Lab Chronicle

Client: Vertex
Job ID: 885-2613-1
Project/Site: SDE 31 Federal CTB

Client Sample ID: BH24-07 2'
Lab Sample ID: 885-2613-17
Date Collected: 04/05/24 13:50
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8021B		1	3292	JP	EET ALB	04/13/24 01:58
Total/NA	Prep	SHAKE			3140	JU	EET ALB	04/11/24 14:31
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 20:49
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 06:40

Client Sample ID: BH24-08 0.5'
Lab Sample ID: 885-2613-18
Date Collected: 04/05/24 14:00
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/13/24 02:21
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8021B		1	3292	JP	EET ALB	04/13/24 02:21
Total/NA	Prep	SHAKE			3140	JU	EET ALB	04/11/24 14:31
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 21:14
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 06:45

Client Sample ID: BH24-08 2'
Lab Sample ID: 885-2613-19
Date Collected: 04/05/24 14:10
Matrix: Solid
Date Received: 04/10/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8015D		1	3291	JP	EET ALB	04/13/24 02:45
Total/NA	Prep	5030C			3124	JP	EET ALB	04/11/24 13:02
Total/NA	Analysis	8021B		1	3292	JP	EET ALB	04/13/24 02:45
Total/NA	Prep	SHAKE			3140	JU	EET ALB	04/11/24 14:31
Total/NA	Analysis	8015D		1	3263	JU	EET ALB	04/12/24 21:38
Soluble	Leach	DI Leach			78020	SMC	EET MID	04/12/24 10:27
Soluble	Analysis	300.0		1	78093	SMC	EET MID	04/13/24 06:50

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Vertex
Job ID: 885-2613-1
Project/Site: SDE 31 Federal CTB

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Laboratory: Eurofins Midland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

Chain-of-Custody Record

Client: Vertex (Devon Energy)

Mailing Address: On File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
5-day
☒ Standard ☒ Rush

Project Name: SDE 31 Federal CTB

Project #:

Project Manager: Kent Stallings

Sampler: AL / AH

On Ice: ☒ Yes ☐ No

# of Coolers: 1 Monty

Cooler Temp(Including CF): 1.6-0 = 1.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107
885-2613 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4-4-24	1040	soil	BH24-01 2'	4 oz	ICE	1										
	1110		BH24-02 2'			2										
	1140		BH24-03 2'			3										
	1200		BH24-04 0.5			4										
4-5-24	0900		BH24-01 0.5'			5										
	0910		BH24-02 0.5'			6										
	0920		BH24-03 0.5'			7										
	0930		BH24-04 2'			8										
	0940		BH24-04 4'			9										
	0950		BH24-04 6'			10										
	1000		BH24-04 7'			11										
	1300		BH24-05 0.5			12										

Date	Time	Relinquished by	Received by	Via	Date	Time
					4/9/24	1100
4/9/24	1900			Courier	4/10/24	7:55

Remarks:
CC: KStallings@Vertex.ca

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

Chain-of-Custody Record

Client: Vertex (Devon Energy)

Mailing Address: On File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5-day

Project Name: SDE 31 Federal CTB

Project #:

Project Manager: Kent Stallings

Sampler: AL/AH

On Ice: ☒ Yes ☐ No

# of Coolers: 1 Marty

Cooler Temp(including CF): 1.6-0=1.6 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4-5-24	1310	Soil	BH24-05 2'	4oz	ICE	13										
	1320		BH24-06 0.5'			14										
	1330		BH24-06 2'			15										
	1340		BH24-07 0.5'			16										
	1350		BH24-07 2'			17										
	1400		BH24-08 0.5'			18										
	1410		BH24-08 2'			19										

Date	Time	Relinquished by	Received by	Via.	Date	Time
					4/9/24	1100
4/9/24	1700			courier	4/10/24	7:55

Remarks: CC: Kstallings@Vertex.ca

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-2613-1

Login Number: 2613 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-2613-1

Login Number: 2613
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 04/12/24 10:57 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

ATTACHMENT 5

Closure Criteria Determination			
Site Name: SDE 31 FED CTB			
Spill Coordinates: 32.26464683, -103.716411		X: UTM easting	Y: UTM northing
Site Specific Conditions		Value	Unit
1	Depth to Groundwater (nearest reference)	>55	feet
	Distance between release and nearest DTGW reference	675	feet
		0.13	miles
	Date of nearest DTGW reference measurement	March 9, 2023	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	84,092	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	70,479	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	21,893	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**		feet
	ii) Within 1000 feet of any fresh water well or spring	2,074	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	8,145	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	60731 ft / 11.5 miles	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	35,904	feet
10	Within a 100-year Floodplain	500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	65,506	feet
11	Soil Type	PU	
12	Ecological Classification	Sandy Loam	
13	Geology	Qa	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04712 POD1	CUB	LE	1	4	1	31	23S	32E	620917	3570289	205	55		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 620896.69 **Northing (Y):** 3570493.43 **Radius:** 1610

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.): ~~C-04712~~ POD 1	WELL TAG ID NO.	OSE FILE NO(S.): C-4712
WELL OWNER NAME(S): Harvard Petroleum Company		PHONE (OPTIONAL)
WELL OWNER MAILING ADDRESS: PO Box 936		CITY: Roswell STATE: NM ZIP: 88202

WELL LOCATION (FROM GPS)	DEGREES	MINUTES	SECONDS	
LATITUDE	32	15	46.1	N
LONGITUDE	-103	42	58.4	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

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1833	Jason Maley	Vision Resources

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
Mar 9, 2023	3/9/23	55	55	Dry

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): Dry

DATE STATIC MEASURED: Dry

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

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

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	45	6	2" pvc sch 40	Thread	2"	Sch 40	—
45	55	6	2" pvc sch 40	Tread	2"	Sch 40	.02

OSE DIT APR 4 2023 PM 1:22

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 *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
			None Pulled And Plugged		

FOR OSE INTERNAL USE

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

FILE NO. C-4712-POD1	POD NO. 1	TRN NO. 743189	
LOCATION Mon 23.32.31.141		WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	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	White Caliche	Y (N)	
20	45	25	Brown fine Sand	Y (N)	
45	55	10	Red sandy Caliche	Y (N)	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): Dry

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

OSE DII APR 4 2023 PM 1:23

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

6. SIGNATURE

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

JMaley Jason Maley 3/24/23

SIGNATURE OF DRILLER / PRINT SIGNEE NAME DATE

FOR OSE INTERNAL USE WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO. C-4712-POD1	POD NO. 1	TRN NO. 743189	
LOCATION Non 23.32.31.141		WELL TAG ID NO. —	PAGE 2 OF 2

Mike A. Hamman, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 743189
File Nbr: C 04712
Well File Nbr: C 04712 POD1

Apr. 04, 2023

VERTEX RESOURCES
P.O. BOX 936
ROSWELL, NM 88202

Greetings:

The above numbered permit was issued in your name on 02/21/2023.

The Well Record was received in this office on 04/04/2023, stating that it had been completed on 03/09/2023, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 02/21/2024.

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

Sincerely,

Maret Thompson
(575)622-6521

drywell

New Mexico Office of the State Engineer
Point of Diversion Summary

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

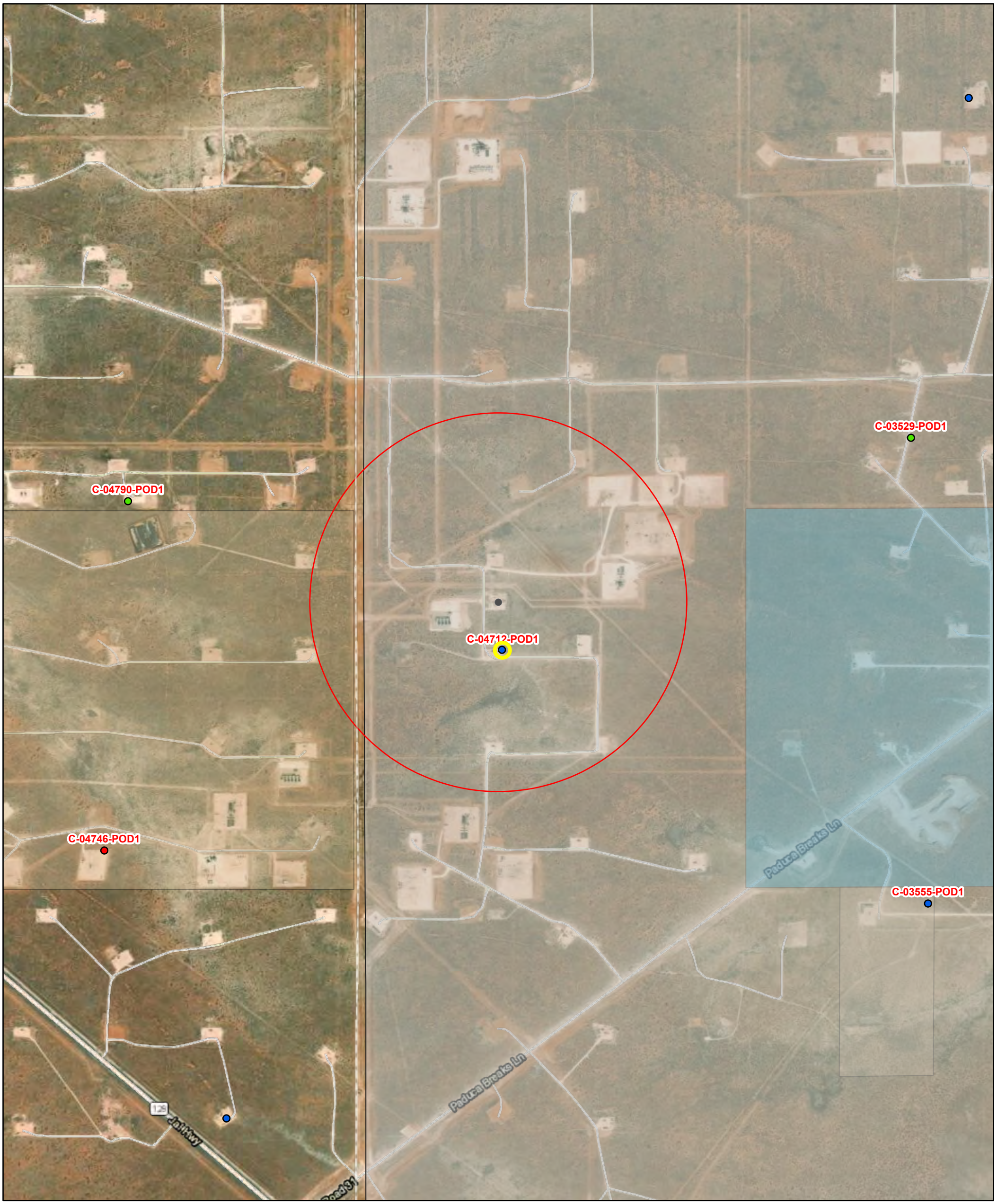
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	C 04712 POD1	1	4	1	31	23S	32E	620917	3570289

Driller License: 1833 **Driller Company:** VISION RESOURCES, INC
Driller Name: JASON MALEY

Drill Start Date:	03/09/2023	**Drill Finish Date:**	03/09/2023	**Plug Date:**	03/14/2023
Log File Date:	04/04/2023	**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	6.00	**Depth Well:**	55 feet	**Depth Water:**	

Casing Perforations:	Top	Bottom
	45	55

OSE POD Location Map



3/29/2024, 3:49:11 PM

GIS WATERS PODs
- Active
- Pending
- Plugged

OSE District Boundary

Water Right Regulations
- Closure Area
- Artesian Planning Area

New Mexico State Trust Lands
- Subsurface Estate
- Both Estates

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

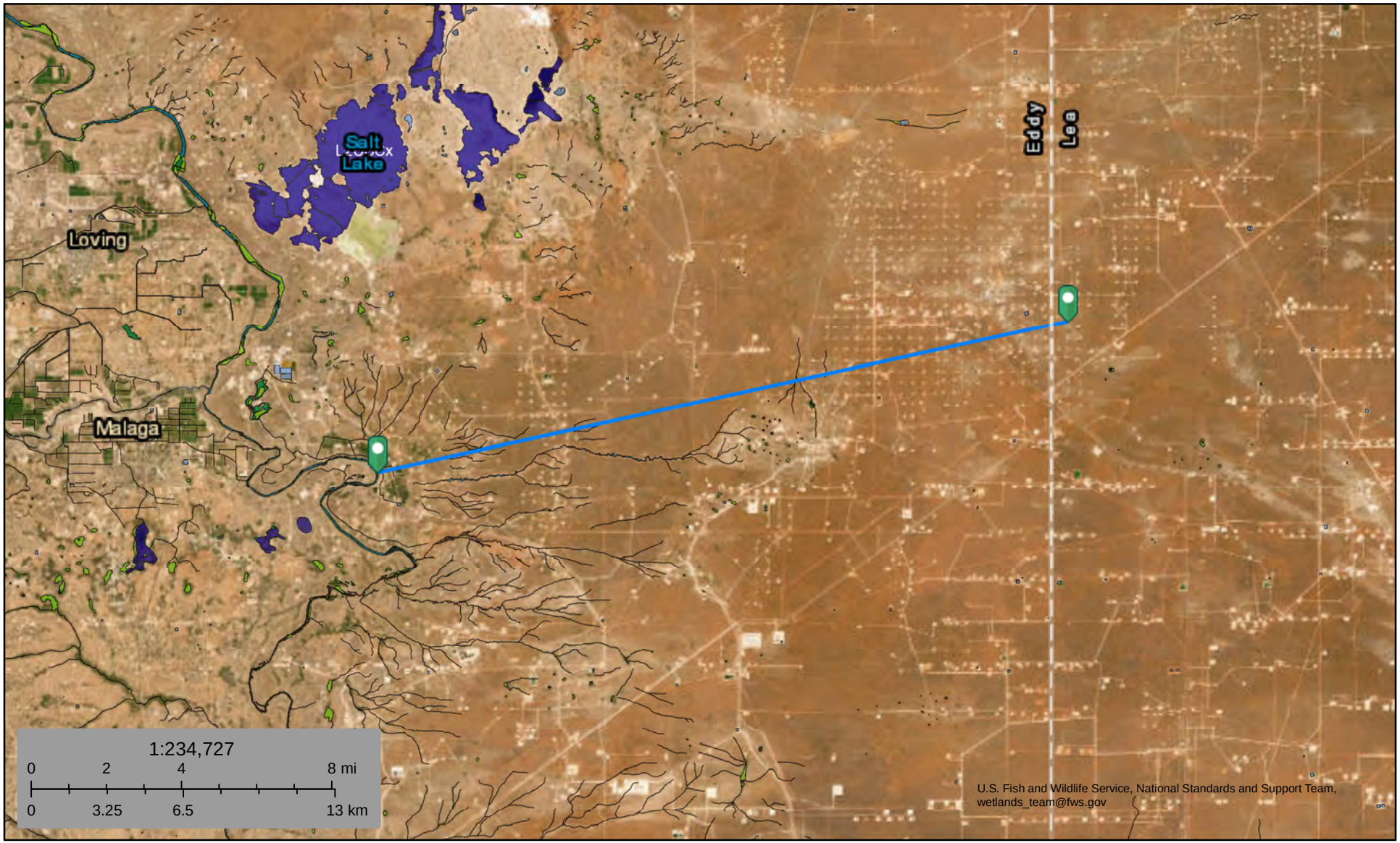
Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar

Online web user

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

02 - SDE 31 CTB Watercourse 84,092 ft



March 29, 2024

Wetlands

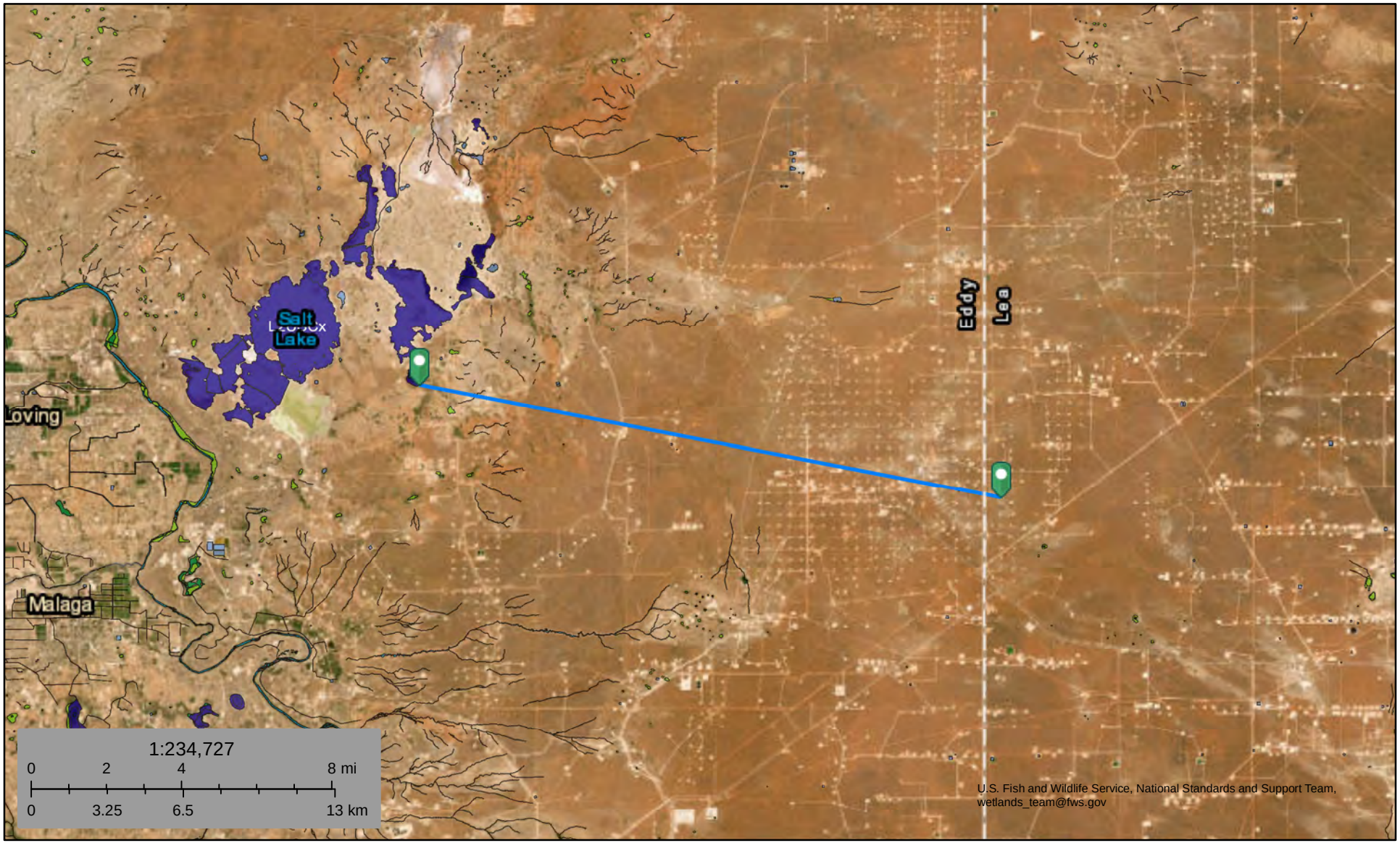
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

03 - SDE 31 CTB Lake 70,479 ft



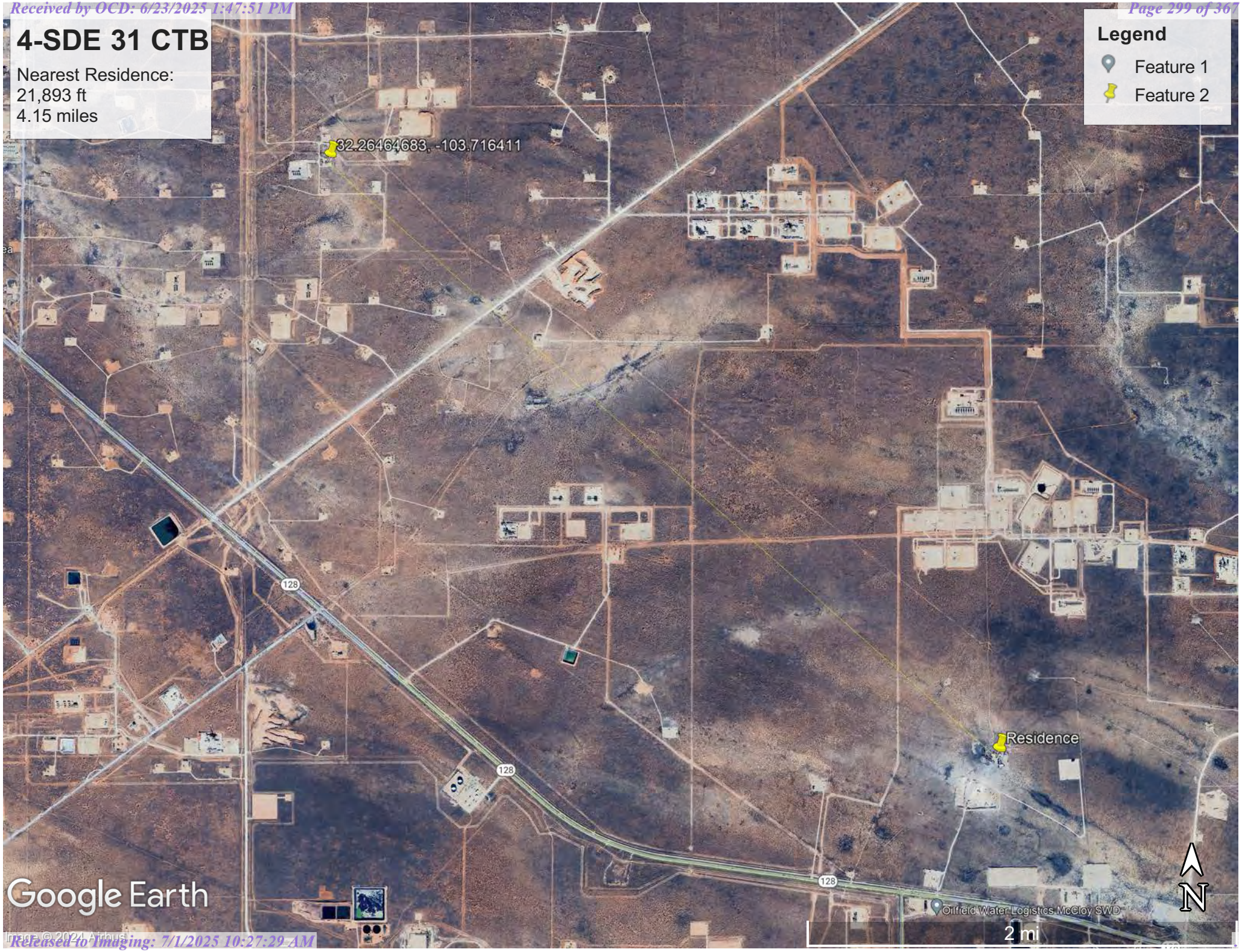
March 29, 2024

Wetlands

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

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

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


4-SDE 31 CTB
Nearest Residence:
21,893 ft
4.15 miles
32.26464683, -103.716411
Legend
Feature 1
Feature 2
Residence
128
128
128
Oilfield Water Logistics McCloy SWD
2 mi
N
Google Earth
Image © 2024 Airbus

New Mexico Office of the State Engineer

Water Right Summary

get image list

WR File Number: C 04712 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: VERTEX RESOURCES

User: HARVARD PETROLEUM COMPANY LLC

Contact: JUSTIN WARREN

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	743189	EXPL	2023-02-21	PMT	APR	C 04712 POD1-6	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04712 POD1	NA		1	4	1	31	23S	32E	620917	3570289	SDE
C 04712 POD2	NA		4	4	4	17	23S	32E	623332	3574331	TOMCAT17
C 04712 POD3	NA		4	1	2	24	23S	31E	619651	3573877	TODD24
C 04712 POD4	NA		1	4	3	14	23S	31E	617535	3574316	TODD14
C 04712 POD5	NA		4	4	3	09	23S	31E	614393	3575754	NPG9
C 04712 POD6	NA		3	3	4	08	23S	31E	613147	3575740	NPG8

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code Grant	Source	q q q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 04712	CUB	MON	0	VERTEX RESOURCES	LE	C 04712 POD1	NA			1 4 1	31	23S	32E	620917	3570289	205
C 04790	CUB	MON	0	DEVON ENERGY RESOURCES	ED	C 04790 POD1	NA			4 4 3	25	23S	31E	619309	3570904	1639
C 03529	C	STK	0	U.S. DEPT. OF INTERIOR--BLM	LE	C 03529 POD1				2 4 3	29	23S	32E	622651	3571212	1896
C 04746	CUB	MON	0	DEVON ENERGY RESOURCES	ED	C 04746 POD1	NA			3 4 3	36	23S	31E	619225	3569417	1987
C 03555	C	STK	3	NGL NORTH RANCH LLC A TEXAS LIMITED LIABILITY CO	LE	C 03555 POD1	NA		Shallow	2 2 1	05	24S	32E	622748	3569233	2239
C 02602	C	SAN	0	POGO PRODUCING COMPANY	ED	C 02602				2 2	35	23S	31E	618471	3570650*	2430
C 04672	CUB	EXP	0	OXY USA INC.	ED	C 04672 POD 1	NA			2 1 4	01	24S	31E	619762	3568286	2481
C 04775	CUB	MON	0	DEVON ENERGY RESOURCES	LE	C 04775 POD1	NA			4 4 4	06	24S	32E	621789	3567860	2780
C 03851	CUB	MON	0	US DEPARTMENT OF ENERGY	LE	C 03851 POD1			Artesian	3 3 4	20	23S	32E	622879	3572660	2936
C 02258	C	PRO	0	DEVON ENERGY CORP.(NEVADA)	ED	C 02258				3 2	26	23S	31E	618055	3571853*	3150
C 02348	C	STK	3	NGL NORTH RANCH LLC A TEXAS LIMITED LIABILITY CO	ED	C 02348			Shallow	1 4 3	26	23S	31E	617647	3571068	3299
C 04712	CUB	MON	0	HARVARD PETROLEUM COMPANY LLC	ED	C 04712 POD3	NA			4 1 2	24	23S	31E	619650	3573877	3606
C 00225 A	CUB	IRR	8.4	GREGORY ROCKHOUSE RANCH	ED	C 02405			Shallow	4 1	02	24S	31E	617690	3568631*	3708
C 01246 AO	CUB	IRR	47.82	CATHLEEN MC INTIRE	ED	C 02405			Shallow	4 1	02	24S	31E	617690	3568631*	3708
C 02405	C	PRO	0	TEXACO EXPLORATION & PROD. IND	ED	C 02405			Shallow	4 1	02	24S	31E	617690	3568631*	3708
C 02452	C	PRO	0	TEXACO EXPLORATION & PROD INC.	ED	C 02405			Shallow	4 1	02	24S	31E	617690	3568631*	3708
					ED	C 02452				4 1	02	24S	31E	617690	3568631*	3708
C 02576	C	PRO	0	SONAT EXPLORATION COMPANY	ED	C 02405			Shallow	4 1	02	24S	31E	617690	3568631*	3708

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

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code Grant	Source	q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 02464	C	PRO	0	COMMISSIONER OF PUBLIC LANDS	ED	C 02464			Shallow	2 3 1	02	24S	31E	617644	3568581	3772
C 02901	C	PUB	0	B & H MAINTENANCE & CONST.	ED	C 02901				3 4 1	02	24S	31E	617589	3568530*	3846
C 04774	CUB	MON	0	DEVON ENGERGY RESOURCES	ED	C 04774 POD1	NA			4 2 2	23	23S	31E	618456	3573856	4155
C 02460	C	PRO	0	SONAT EXPLORATION	ED	C 02460			Shallow	3	02	24S	31E	617496	3568022*	4203
					ED	C 02460 POD2			Shallow	3	02	24S	31E	617496	3568022*	4203
C 04687	CUB	MON	0	ENSOLUM LLC	ED	C 04687 POD1	NA			4 2 3	12	24S	31E	619481	3566450	4283
C 03530	C	STK	0	U.S. DEPT. OF INTERIOR--BLM	LE	C 03530 POD1				3 4 3	07	24S	32E	620886	3566156	4336
C 04780	CUB	MON	0	EOG RESOURCES	LE	C 04780 POD1	NA			1 3 1	34	23S	32E	625363	3570521	4466
C 04712	CUB	MON	0	HARVARD PETROLEUM COMPANY LLC	LE	C 04712 POD2	NA			4 4 4	17	23S	32E	623331	3574331	4545
C 04727	CUB	EXP	0	TETRA TECH INC ON BEHALF OF CONOCO PHILLIPS	ED	C 04727 POD1	NA			2 2 2	13	24S	31E	620218	3565965	4578
C 04770	CUB	MON	0	TASMAN INC.	LE	C 04770 POD1	NA			2 4 2	18	23S	32E	621778	3575132	4722
C 02216	CUB	PLS	11.3	BRININSTOOL XL RANCH LLC	LE	C 02216				2 2 4	21	23S	32E	625035	3573261*	4978
C 04704	CUB	MON	0	DEVON ENERGY	ED	C 04704 POD1	NA			3 2 2	13	23S	31E	619854	3575363	4980

Record Count: 31

UTMNAD83 Radius Search (in meters):

Easting (X): 620896.69 **Northing (Y):** 3570493.43 **Radius:** 5000

Sorted by: Distance

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

07 - SDE 31 CTB Wetland 8,145 ft

March 29, 2024

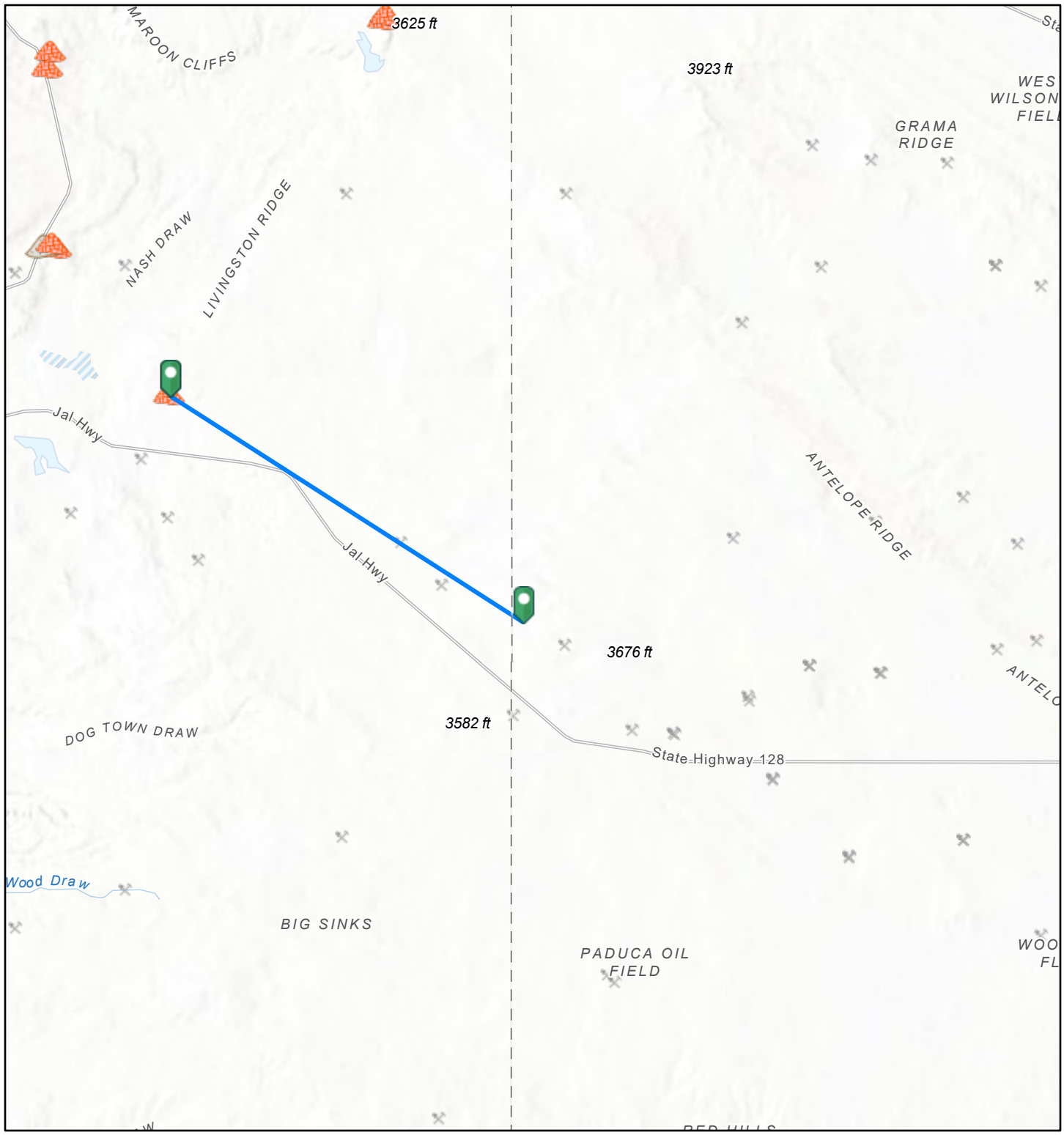
Wetlands

- 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-SDE 31 FEDERAL CTB Nearest Subsurface Mine 60,731 Feet/11.5 mi



5/16/2025, 12:37:42 PM

1:288,895

0 2 4 8 mi

0 3.25 6.5 13 km

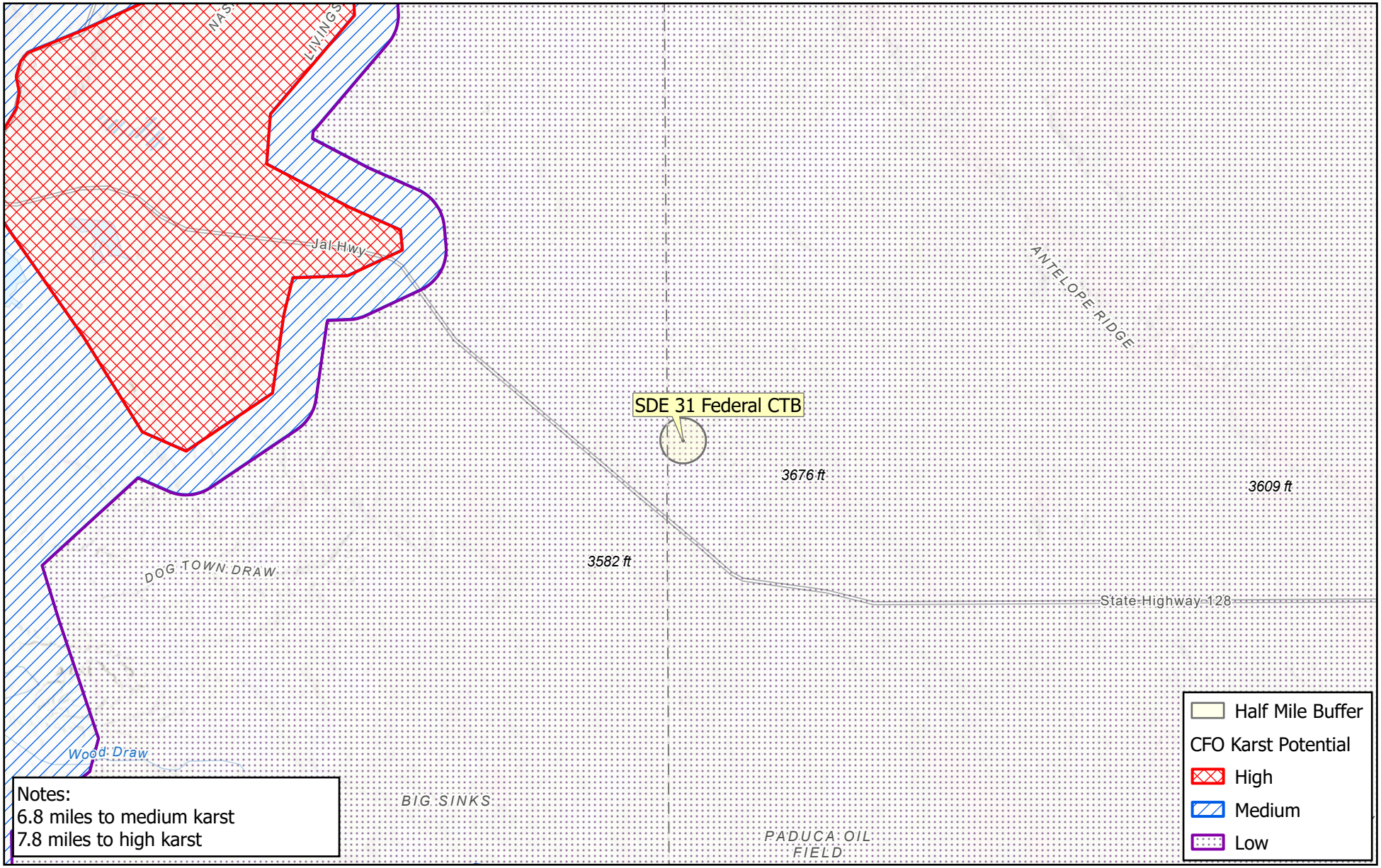
Registered Mines

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

Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

EMNRD MMD GIS Coordinator

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



VERTEX

0 1.5 3 Miles

NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Map Center:
Lat/Long: 32.264698°N, 103.716421°W

Date: May 15/25

N

Karst Potential
SDE 31 Fed CTB (SDE 31 FED 4)

FIGURE:
9

devon

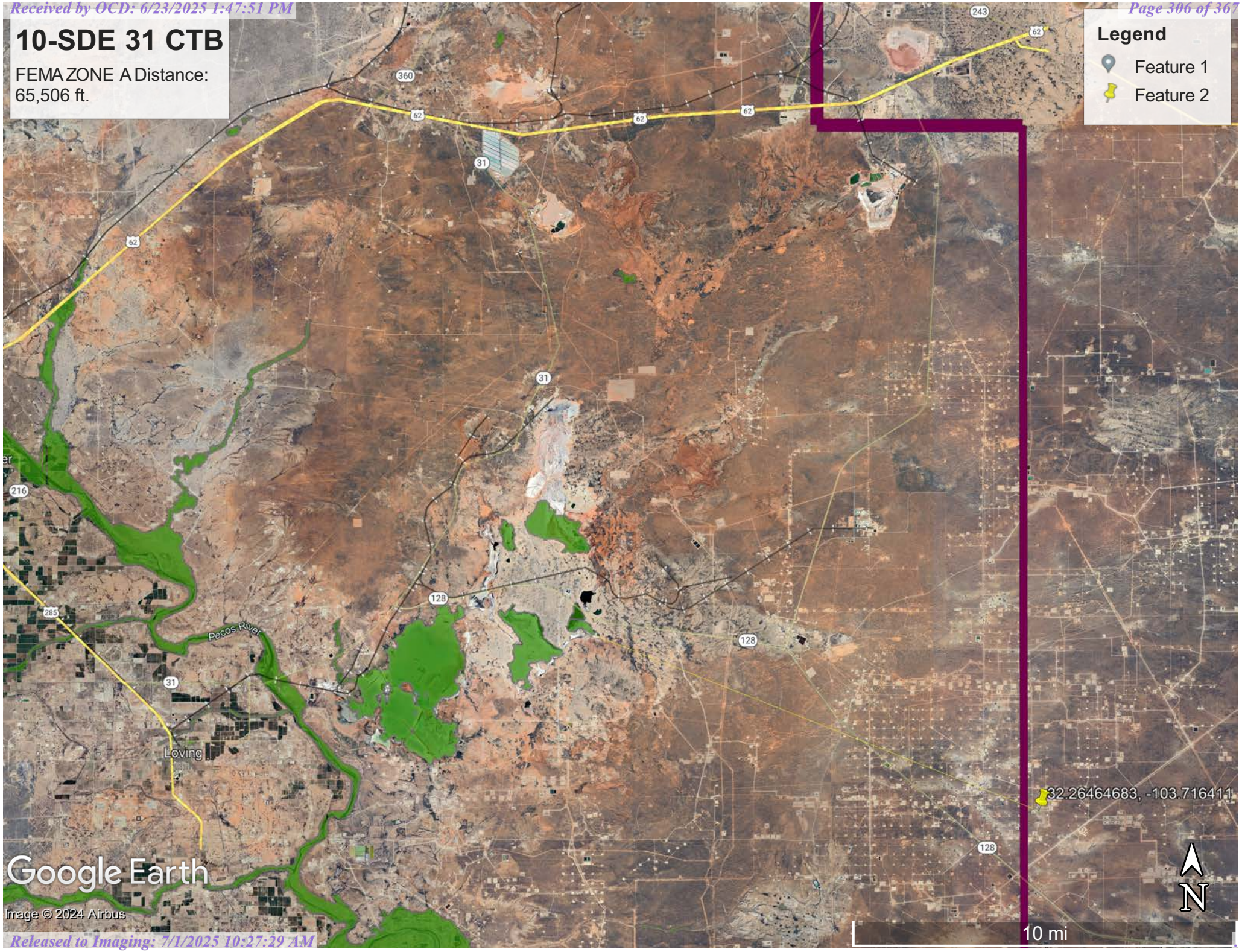
Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Georeferenced image from Esri, 2025. Site features from GPS, Vertex, 2025.

VERSATILITY. EXPERTISE.

10-SDE 31 CTB

FEMA ZONE A Distance: 65,506 ft.



National Flood Hazard Layer FIRMette

FEMA

103°43'18"W 32°16'8"N

103°42'40"W 32°15'37"N

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

1:6,000

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 3/30/2024 at 10:39 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Lea County, New Mexico

March 30, 2024

Preface

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

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

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

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

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

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

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

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

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Lea County, New Mexico.....13
PU—Pyote and Maljamar fine sands.....13
References.....15

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PU	Pyote and Maljamar fine sands	2.8	100.0%
Totals for Area of Interest		**2.8**	**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.

Lea County, New Mexico

PU—Pyote and Maljamar fine sands

Map Unit Setting

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

Map Unit Composition

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

Description of Pyote

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Maljamar

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Kermit

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

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

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

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

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

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

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

USDA Natural Resources Conservation Service

Ecological site R070BD004NM
Sandy

Accessed: 03/30/2024

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Fan piedmont (3) Terrace
Flooding frequency	None
Ponding frequency	None
Elevation	2,842–4,500 ft
Slope	0–5%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost 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 this site. Strong winds blow from the southwest in January through June which rapidly dries out the soil during a critical period for cool season plant growth.

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

Table 3. Representative climatic features

Frost-free period (average)	200 days
Freeze-free period (average)	219 days
Precipitation total (average)	12 in

Influencing water features

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

Soil features

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

Subsurface is a sandy loam, loam, sandy clay loam, clay loam (contains more than 45 percent sand and 18 to 35 percent clay) and less than 15 percent carbonates.

Substratum is a sandy loam, fine sandy loam, sandy clay loam, clay loam, coarse sandy loam, or coarse sand and Calcium carbonate equivalent of 15 to 40 percent. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

These soils, if unprotected by plant cover and organic residue, become wind blown and low hummocks are formed. They contains more than 45 percent sand and 18 to 35 percent clay.

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

Characteristic Soils Are:
Anthony
Berino
Cacique
Harkey
Pajaritio
Reakor
Mobeetie
Wink
Sotim
Vinton
Drake
Onite
Alma
Poquita
Dona Ana
Monahans

Note: *Cacique soils is a shallow soil.

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Sandy loam (3) Loamy fine sand
Family particle size	(1) Loamy
Drainage class	Well drained to moderately well drained
Permeability class	Moderately rapid to moderately slow
Soil depth	30–72 in
Surface fragment cover <=3"	0–20%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	3–11 in
Calcium carbonate equivalent (0-40in)	5–30%
Electrical conductivity (0-40in)	0–2 mmhos/cm
Sodium adsorption ratio (0-40in)	0–1
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–15%
Subsurface fragment volume >3" (Depth not specified)	0%

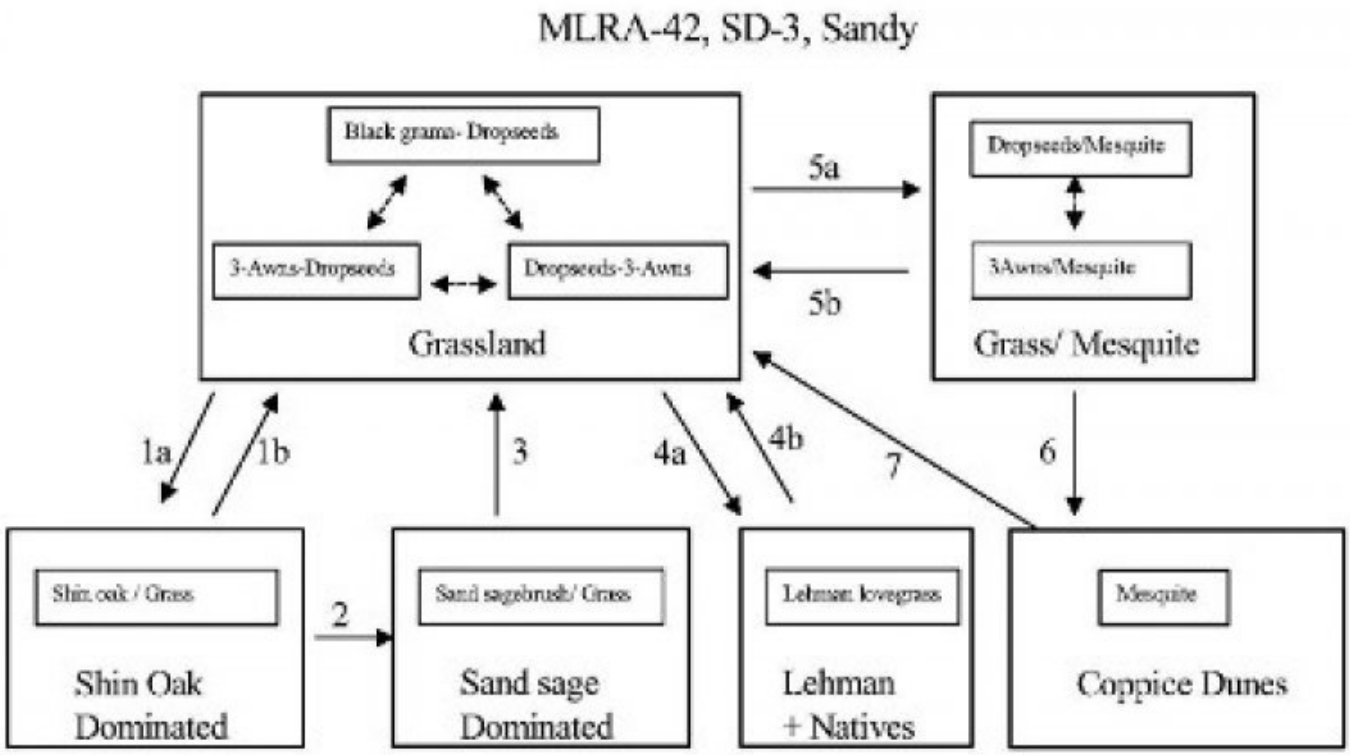
Ecological dynamics

Overview

The Sandy site often intergrades with the Loamy Sand and Deep Sand sites (SD-3). Sandy sites occur on plains, fans, or terraces between drainages. Slopes average less than five percent. Surface textures are usually sandy loams. The historic plant community of the Sandy site is dominated by black grama (*Bouteloua eriopoda*) and dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*). Blue grama (*B. gracilis*) also occurs as a subdominant species. Perennial and annual forb abundance is distributed relative to precipitation occurrence. Litter and to a lesser extent, bare ground, compose a significant proportion of the ground cover while grasses compose the remainder. Decreases in black grama and other grass species' cover indicate a transition to states with an increased shrub component. Shinnery oak (*Quercus havardii*), sand sage(*Artemisia filifolia*), and honey mesquite (*Prosopis glandulosa*) can all increase in composition. Lehmann lovegrass (*Eragrostis lehmanniana*) also may occur as a result of invasion and competition among grass species. Heavy grazing intensity and/or drought are influential in decreasing grass cover and subsequently increasing shrub cover. Fire suppression further supports shrub cover increase and an advantage over grass species. However, brush and grazing management may restore grass species and reverse shrub or grass/shrub dominated states back toward the historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram)



1a. Climate, fire suppression, competition, over grazing
1b. Brush control, Prescribed grazing

2.Brush control (insufficient chemical).

3. Brush control

4a. Invasion from seeded areas.
4b. Brush control reseed native species.

5a. Overgrazing, seed dispersal, lack of fire.
5b. Brush control, prescribed fire.

6.Severe loss of grass cover, wind erosion.

7. Brush control, seeding

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: The historic plant community is composed primarily of black grama, dropseeds, and a secondary component of blue grama. Black grama tends to dominate due to the predominance of sandy loam soils; however, dropseeds increase on more loamy soils. Perennial and annual forbs are common but their abundance and

distribution are dependent on seasonal precipitation. Historical fire frequency is unknown but probably contributed to shrub reduction to the competitive advantage of grass species. Excessive grazing and drought are likely the dominant drivers that decrease black grama and increase dropseed and threeawn abundance within the historic plant community. Black grama has low seed viability, and therefore, reproduces vegetatively during the summer growing season. However, black grama growth is delayed one season after normal precipitation. Black grama is dormant for the remainder of the year; however, black grama retains nutritive value yearlong for grazing. In contrast, dropseeds have relatively abundant, viable seed production and can benefit from early spring as well as summer precipitation. Threeawns also respond to spring and summer moisture and tend to be the year's first palatable species. Threeawns and dropseeds, however, are not palatable during dormant periods, which extends grazing pressure to black grama. Moderate to heavy grazing reduces vegetative cover of black grama which increases its susceptibility to wind erosion and drought (Canfield 1939). Black grama is especially vulnerable to grazing during the summer growing season when stoloniferous growth and rooting occur. Black grama sustains short droughts through reduction of plant tufts which will subsequently emerge with sufficient moisture. Prolonged drought or grazing concurrently under drought conditions can delay or impede recovery of black grama (Nelson 1934) and increase abundance of dropseeds, threeawns, and blue grama. Historical fire events may have benefited black grama, especially, frequent, light intensity/severity fires in conjunction with sufficient moisture to increase stolon production (McPherson 1995). Fires which were hot and severe, however, probably contributed to black grama mortality, more so in drought conditions. Diagnosis: This state is a grassland dominated by black grama, dropseeds, and threeawns, with subdominant blue grama. Shrubs, such as sand sage and mesquite, are sparsely dispersed throughout the grassland. Forb populations are present and fluctuate with precipitation variability. Other grasses that could appear on this site include: fall withchgrass, slim tridens, Almejita signalgrass, Indian ricegrass and fluffgrass. Other shrubs include: pale wolfberry, lotebush, tarbush, Apacheplume, and mesquite. Other forbs include: plains tickseed, plains blackfoot, scorpionweed, nama, wooly guara, wooly dalea, spectaclepod mustard, bladderpod mustard, menodora, prickly lettuce, lambsquarter, wooly Indianwheat and wild buckwheat.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	480	720	960
Forb	90	135	180
Shrub/Vine	30	45	60
Total	**600**	**900**	**1200**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	35-40%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	35-45%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	15-20%

Figure 7. Plant community growth curve (percent production by month). NM2804, R042XC004NM-Sandy-HCPC. SD-3 Sandy - Warm season plant community .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	3	4	10	10	25	30	12	5	0	0

State 2
Shinnery Oak Dominated

Community 2.1
Shinnery Oak Dominated

Shinnery Oak Dominated: This state is dominated by Shinnery oak with subdominant grass species from the historic plant community. Bare ground is a significant component in this state. Shinnery oak tends to be clumped in distribution in finer soil textures. Shinnery oak density increases (as well as dropseeds, threeawns, and blue grama) in coarse textured (e.g., Loamy Sand sites) and deeper, coarse textured (e.g., Deep Sand and Sandhills sites) soils. Shinnery oak predominates during periods of above average (i.e., 16 in.) precipitation during the months of July and August. Abundance and distribution also increases with disturbance, such as excessive grazing and fire, due to an aggressive rhizome system. Shinnery oak's extensive root system allows competitive exclusion of grasses and forbs. Brush control with herbicide treatments applied in the spring can reduce Shinnery oak (Herbel et al. 1979, Pettit 1986). In addition, repetitive seasons of goat browsing can also decrease Shinnery oak abundance. However, brush management should maintain shrub patches to prevent erosion and to provide wildlife cover and forage. Diagnosis: This state represents a clumped distribution of Shinnery oak with patches of bare ground and subdominant grass species, such as black grama, dropseeds, threeawns, and blue grama. Shinnery oak density increases, as do dropseeds, threeawns, and blue grama, as Sandy site intergrades with Deep Sand and Sandhills sites. Transition to Shinnery Oak-Dominated State (1a): Decrease in black grama with subsequent decrease in dropseeds and threeawns. Increase in Shinnery oak as a result of drought, above average precipitation (>16 inches), grazing, fire suppression, interspecific competition, and coarse textured soils. Key indicators of approach to transition: • Loss of black grama and other grass species cover • Increase of dropseed/threeawn and shinnery oak • Surface soil erosion and bare patch expansion Transition to Historic Plant Community (1b): The Shinnery oak-dominated state begins to transition toward the historic plant community as drivers such as drought, but also above average precipitation (e.g., 16 inches) discontinue. Brush control can also drive the Shinnery oak state toward a grassland state.

State 3
Sand Sage Dominated

Community 3.1
Sand Sage Dominated

Sand Sage Dominated: This state is dominated by sand sage with subdominant grass species from the historic plant community. Sand sage occurs as a result of insufficient herbicide application in Shinnery oak dominated sites with subdominant sand sage. Sand sage either reestablishes dominance or colonizes from an off-site location and stabilizes soils. Sand sage stabilizes light sandy soils from wind erosion and provides a harbor for grass and forb species in heavily grazed conditions (Davis and Bonham 1979). Sand sage abundance increases with drought and/or heavy grazing, but decreases with light grazing due to herbaceous plant competition. Grass and forb species can reestablish as competition from sand sage is relatively light. Herbicide applied in the spring, especially when growth and photosynthesis rates are greatest, can reduce sand sage if there is subsequent rest from grazing (Herbel et al. 1979, Pettit 1986). Brush management should maintain patches of sand sage to prevent wind erosion and subsequent dune formation. Diagnosis: This state is dominated by sand sage with subdominant grass species, such as black grama, dropseeds, threeawns, and blue grama. Sand sage tends to occur in sites with coarser textured soils. Transition to Sand Sage Dominated (2): Sand sage appears from off-site locations and/or increases after insufficient herbicide applications aimed at removing Shinnery oak and sand sage. Key indicators of approach to transition: • Increase of sand sage seedlings and grasses • Reduced soil erosion Transition to Historic Plant Community (3): The sand sage dominated state transitions toward the historic plant community as sand sage decreases primarily through brush management but also with light intensity grazing management. Drought reduction will also support a transition to the historic plant community.

State 4
Lehmann Lovegrass + Natives

Community 4.1
Lehmann Lovegrass + Natives

Lehmann Lovegrass + Natives: This state is dominated by Lehmann lovegrass with subdominant grass species from the historic plant community. Lehmann lovegrass is a warm-season, perennial bunchgrass that was introduced from South Africa in the 1930's for rangeland restoration purposes (Humphrey 1970). Lehmann lovegrass invades from off-site locations with projects utilizing lovegrass for reseeding, soil stabilization, or highway projects. Lehmann lovegrass provides a winter and early spring forage for grazing. Lehmann lovegrass is vigorous in sandy to sandy loam soils which receive approximately 6-8 inches of summer precipitation (Cox et al. 1988). Lehmann lovegrass's aggressive competitive exclusion of native grass species has been attributed to lovegrass's low summer palatability, which reduces vigor of native species and allows lovegrass to increase vigor before grazing. Also, Lehmann lovegrass abundant seed production and establishment, especially after disturbances, allows for increased competition (Cable 1971, Cox et al. 1981). Lehmann lovegrass generally is tolerant to fire because of an aggressive seed-bank; however, severe fires can cause mature lovegrass mortality (Sumrall et al. 1991). Herbicide and reseeding is recommended for control of Lehmann lovegrass (Winn 1991). Diagnosis: Lehmann lovegrass and grass species from the historic plant community, such as black grama, dropseeds, threeawns, and blue grama, dominate this state. Transition to Lehmann lovegrass and native grass species (4a): Decrease in black grama with subsequent decrease in dropseeds and threeawns. Increase in Lehmann lovegrass as a result of drought, grazing, fire and interspecific competition from nearby sources of Lehmann lovegrass. Key indicators of approach to transition: • Loss of black grama and other grass species cover • Disturbance and nearby source of Lehmann lovegrass • Increase of Lehmann lovegrass seedlings Transition to Historic Plant Community (4b): The Lehmann lovegrass/native grass state transitions toward the historic plant community after actions such as herbicide application and native reseeding have occurred. In addition, prevention of disturbances such as fire and livestock grazing also will encourage the transition to a native grass community

State 5
Grass/Mesquite

Community 5.1
Grass/Mesquite

Grass/Mesquite: This state is dominated by honey mesquite with dropseeds and/or threeawns. Black grama generally is rare as a result of heavy grazing intensity. Honey mesquite invades through seed dispersal from grazing livestock and/or wildlife. Dropseeds and threeawns cohabitate with mesquite due to sufficient precipitation. Mesquite tends to be arborescent due to less soil erosion relative to the Coppice Dunes state which reflects large soil loss. Mesquite obtains approximately half of its nitrogen from symbiotic bacteria housed in root nodules (Lajtha and Schlesinger 1986). Mesquite also provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Historical fire occurrences reduced mesquite abundance by disrupting seed production cycles and suppressing seedlings; thus, grass species remained dominant. However, fire suppression has allowed mesquite to increase in density and abundance, increasing mesquite resistance to fires through aggressive resprouting. Herbicide application combined with subsequent prescribed fire may be effective in mesquite reduction (Britton and Wright 1971). Diagnosis: This state is co-dominated by honey mesquite and dropseeds or threeawns. Transition to Grass/Mesquite State (5a): This state occurs due to a decrease in black grama primarily from heavy grazing intensity and from an introduction of mesquite seeds from grazers. Dropseeds and threeawns increase and co-exist in the absence of black grama. Fire suppression also is responsible for an increase in mesquite. Key indicators of approach to transition: • Loss of black grama • Increase of dropseeds and/or threeawns • Increase of mesquite seedlings Transition to Historic Plant Community (5b): Transition to the historic plant community requires brush management though herbicide application and possibly prescribed fire to reduce mesquite abundance. Once shrub species are removed, prescribed fire may be useful in maintaining a dominant grassland. Precipitation is also necessary in conjunction with management activities to support a dominant grassland.

State 6

Coppice Dunes

Community 6.1
Coppice Dunes

Coppice Dunes: This state is dominated by coppice mesquite dunes with minimal or no grass cover. Honey mesquite occurs in a multi-stemmed growth form which cultivates it's dune formation by entrapping drifting sands. Mesquite utilizes its extensive tap and lateral roots to benefit from moisture deep in coarse textured soils. Grass species cannot compete for moisture, especially with compounding perturbations such as heavy grazing and drought. Soils succumb to wind erosion with the depletion of grass cover and eventually dunes form around mesquite plants (Gould 1982). Brush management is limited to herbicide application, biological control, or manual removal, as a lack of grass cover prevents prescribed burning. Seeding subsequent to brush control may transition this State toward the historic plant community. Diagnosis: This state is characterized by low growing, multi-stemmed mesquite plants which form Coppice dunes by drifting soils from wind erosion. As grass cover decreases, windblown soils are removed from unprotected, inter-dune areas. Soils are then re-deposited on dunes which increases dune size. Transition to Mesquite Coppice Dunes State (6): Decrease in black grama with subsequent decrease in dropseeds and threeawns due to competition with mesquite especially during drought, heavy grazing, and fire suppression. Competitive exclusion of grasses leads to wind erosion of sandy soils and dune formation of low growing mesquite plants. Key indicators of approach to transition: • Loss of black grama and other grass species cover • Wind erosion as evidenced by pedestalled plants • Bare patch expansion • Increase of Coppice dune mesquites Transition to Historic Plant Community (7): Transition toward the historic plant community requires mesquite removal though either herbicide application, biological control, or manual removal. In addition, seeding of native grass species with subsequent years of sufficient moisture is critical.

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**			315–360	
	black grama	BOER4	*Bouteloua eriopoda*	315–360	–
2	**Warm Season**			45–90	
	blue grama	BOGR2	*Bouteloua gracilis*	45–90	–
3	**Warm Season**			27–45	
	bush muhly	MUPO2	*Muhlenbergia porteri*	27–45	–
4	**Warm Season**			90–135	
	spike dropseed	SPCO4	*Sporobolus contractus*	90–135	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	90–135	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	90–135	–
5	**Warm Season**			27–45	
	threeawn	ARIST	*Aristida*	27–45	–
6	**Warm Season**			27–45	
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	27–45	–
7	**Warm Season**			27–45	
	Arizona cottontop	DICA8	*Digitaria californica*	27–45	–
8	**Warm Season**			45–72	
	silver bluestem	BOSA	*Bothriochloa saccharoides*	45–72	–
	little bluestem	SCSC	*Schizachyrium scoparium*	45–72	–
9	**Warm Season**			9–27	
	vine mesquite	PAOB	*Panicum obtusum*	9–27	–

10	**Warm Season**			9–27	
	tobosagrass	PLMU3	*Pleuraphis mutica*	9–27	–
11	**Other Perennial Grasses**			9–27	
	Grass, perennial	2GP	*Grass, perennial*	9–27	–
Shrub/Vine					
12	**Shrub**			9–45	
	yucca	YUCCA	*Yucca*	9–45	–
13	**Shrub**			9–27	
	catclaw mimosa	MIACB	*Mimosa aculeaticarpa var. biuncifera*	9–27	–
14	**Shrub**			9–27	
	fourwing saltbush	ATCA2	*Atriplex canescens*	9–27	–
15	**Shrub**			9–27	
	jointfir	EPHED	*Ephedra*	9–27	–
16	**Shrub**			9–27	
	javelina bush	COER5	*Condalia ericoides*	9–27	–
17	**Shrub**			9–27	
	sand sagebrush	ARFI2	*Artemisia filifolia*	9–27	–
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	9–27	–
18	**Other Shrubs**			9–27	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	9–27	–
Forb					
19	**Forb**			27–63	
	croton	CROTO	*Croton*	27–63	–
	globemallow	SPHAE	*Sphaeralcea*	27–63	–
20	**Forb**			27–45	
	curlycup gumweed	GRSQ	*Grindelia squarrosa*	27–45	–
	woolly groundsel	PACA15	*Packera cana*	27–45	–
21	**Forb**			9–27	
	Adonis blazingstar	MEMU3	*Mentzelia multiflora*	9–27	–
22	**Forb**			27–45	
	redstem stork's bill	ERCI6	*Erodium cicutarium*	27–45	–
	Texas stork's bill	ERTE13	*Erodium texanum*	27–45	–
23	**Other Forbs**			9–27	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	9–27	–

Animal community

This site provides habitat which support a resident animal community that is characterized by pronghorn antelope, black-tailed jackrabbit, spotted ground squirrel, black-tailed prairie dog, yellow-faced pocket gopher, Ord's kangaroo rat, Northern grasshopper mouse, southern plains woodrat, badger, meadowlark, roadrunner, burrowing owl, white-necked raven, cactus wren, pyrrhuloxia, lesser prairie chicken, mourning dove, scaled quail, Harris' hawk, side-blotched lizard, marbled whiptail, Texas horned lizard, prairie rattlesnake, plains spadefoot toad, 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
Anthony B
Berino B
Cacique C *shallow soil
Harkey B
Pajaritio B
Reakor B
Mobeetie B
Wink B
Sotim B
Vinton B
Drake B
Onite B
Alma B
Poquita B
Dona Ana B
Monahans B

Recreational uses

This site offers recreation potential for hiking, horseback riding, nature observation, and photography, bird, antelope and predator hunting. During years of abundant spring moisture, this site displays a colorful array of wildflowers.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all classes and kinds of livestock during all seasons of the year. Under retrogression, plants such as black grama, blue grama, bush muhly, plains bristlegrass, Arizona cottontop, vine mesquite, little bluestem and fourwing saltbush will decrease while the dropseeds, threeawns, tobosa, yucca, catclaw mimosa, javelinabush, mesquite and broom snakeweed will increase. This site responds well to brush management and deferment. It is best suited 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 2.7 – 3.8
75 – 51 3.5 – 5.0
50 – 26 5.0 – 8.0
25 – 0 8.1 +

Inventory data references

Other 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

Other 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.

Literature Cited

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

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

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

Cable, Dwight R. 1971. Lehmann lovegrass on the Santa Rita Experimental Range, 1937-1968. Journal of Range Management 24:17-21.

Canfield, R. H. 1939. The effect of intensity and frequency of clipping on density and yield of black grama and tobosa grass. Tech. Bull. 681. Washington, DC: U.S. Department of Agriculture. 32 p.

Cox, Jerry R.; Ruyle, G.B.; Fourle, Jan H.; Donaldson, Charlie. 1988. Lehmann lovegrass—central South Africa and Arizona, USA. Rangelands 10(2):53-55

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

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

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

---

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

---

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

---

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

---

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

---

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

---

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

---

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

---

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

---

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

---

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

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

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

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

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

17. **Perennial plant reproductive capability:**

USDA Natural Resources Conservation Service

Ecological site R070BD003NM
Loamy Sand

Accessed: 03/30/2024

General information

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

Figure 1. Mapped extent

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

Associated sites

R070BD004NM	**Sandy** Sandy
R070BD005NM	**Deep Sand** Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

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

The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

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

Characteristic soils are:
Maljamar
Berino
Parjarito
Palomas
Wink
Pyote

Table 4. Representative soil features

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

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

Ecological dynamics

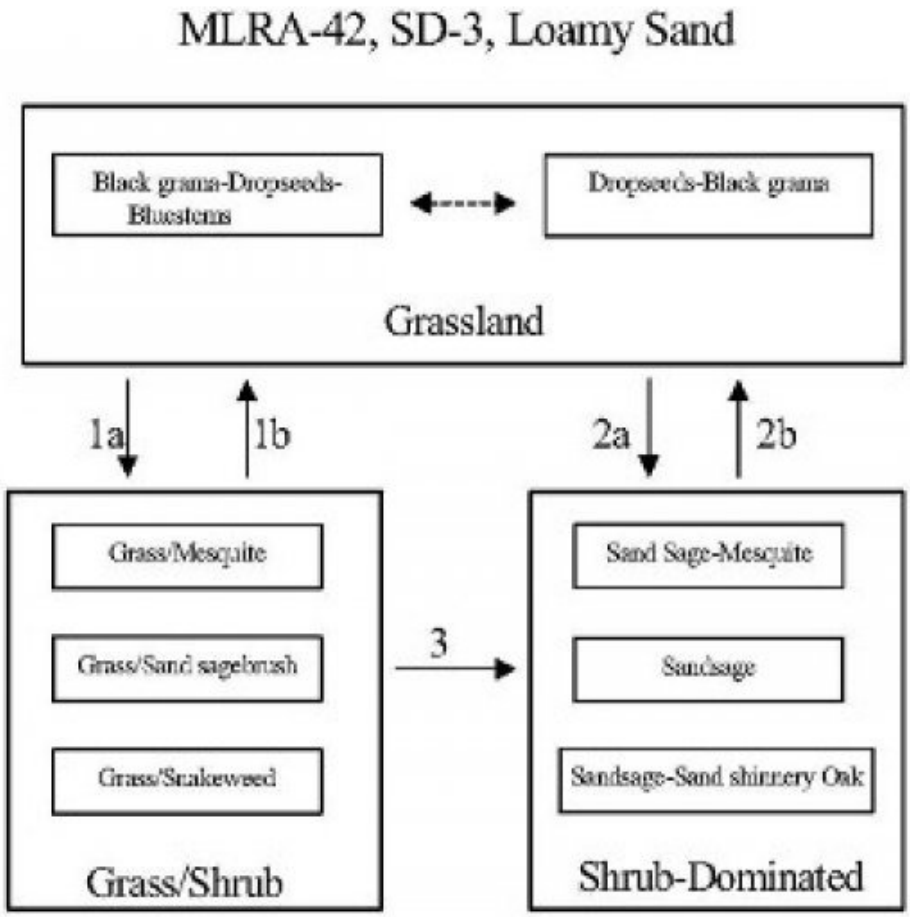
Overview

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

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

State and transition model

Plant Communities and Transitional Pathways (diagram):



1a. Drought, over grazing, fire suppression.
1b. Brush control, prescribed grazing

2.a Severe loss of grass cover, fire suppression, erosion.
2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

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

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

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

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

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

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

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

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

Additional community tables

Table 7. Community 1.1 plant community composition

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

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

Animal community

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

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.
Hydrologic Interpretations
Soil Series Hydrologic Group
Berino B
Kinco A
Maljamar B
Pajarito B
Palomas B
Wink B
Pyote A

Recreational uses

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

Wood products

This site has no potential for wood products.

Other products

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

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.3 – 3.5
75 – 51 3.0 – 4.5
50 – 26 4.6 – 9.0
25 – 0 9.1 +

Inventory data references

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

Other references

Literature Cited:

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

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

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

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

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

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

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

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

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

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

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

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

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

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

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

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

---

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

---

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

---

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

---

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

---

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

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

---

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

---

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

---

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

---

17. **Perennial plant reproductive capability:**

USDA Natural Resources Conservation Service

Ecological site R070BD005NM
Deep Sand

Accessed: 03/30/2024

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.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on terraces, Piedmonts, dunes fields, or upland plains. Parent material consists of eolian deposits and alluvium derived from sandstone. Slopes range from 0 to 15 percent, usually less than 5 percent. Low, stabilized hummocks or dunes frequently occur. Elevations range from 2,842 to 4,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Dune (2) Parna dune (3) Terrace
Flooding frequency	None
Ponding frequency	None
Elevation	2,842–4,500 ft
Slope	0–15%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

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

Both temperature and moisture favor warm season perennial plant growth. During years of abundant winter and early spring moisture, cool season growth and annual forbs, make up an important component of this site. Strong winds blow from the west from January through June, which accelerates soil drying during a critical period for cool

season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

Soils are deep or very deep. Surface textures are sand loam, fine sand or loamy fine sand, Underlying material textures are loamy fine sand, fine sand, sand or fine sandy loam. Because of the coarse textures and rapid drying of the surface, the soil, if unprotected by plant cover and organic residue, becomes windblown and low hummocks or dunes are formed around shrubs.

Characteristic soils are:
Anthony
Aguena
Kermit
Likes
Pintura
Bluepoint

Table 4. Representative soil features

Surface texture	(1) Sand (2) Fine sand (3) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to excessively drained
Permeability class	Moderate to very rapid
Soil depth	60–72 in
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	3–5 in
Calcium carbonate equivalent (0-40in)	5–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–7.8

Subsurface fragment volume <=3" (Depth not specified)	5–10%
Subsurface fragment volume >3" (Depth not specified)	0%

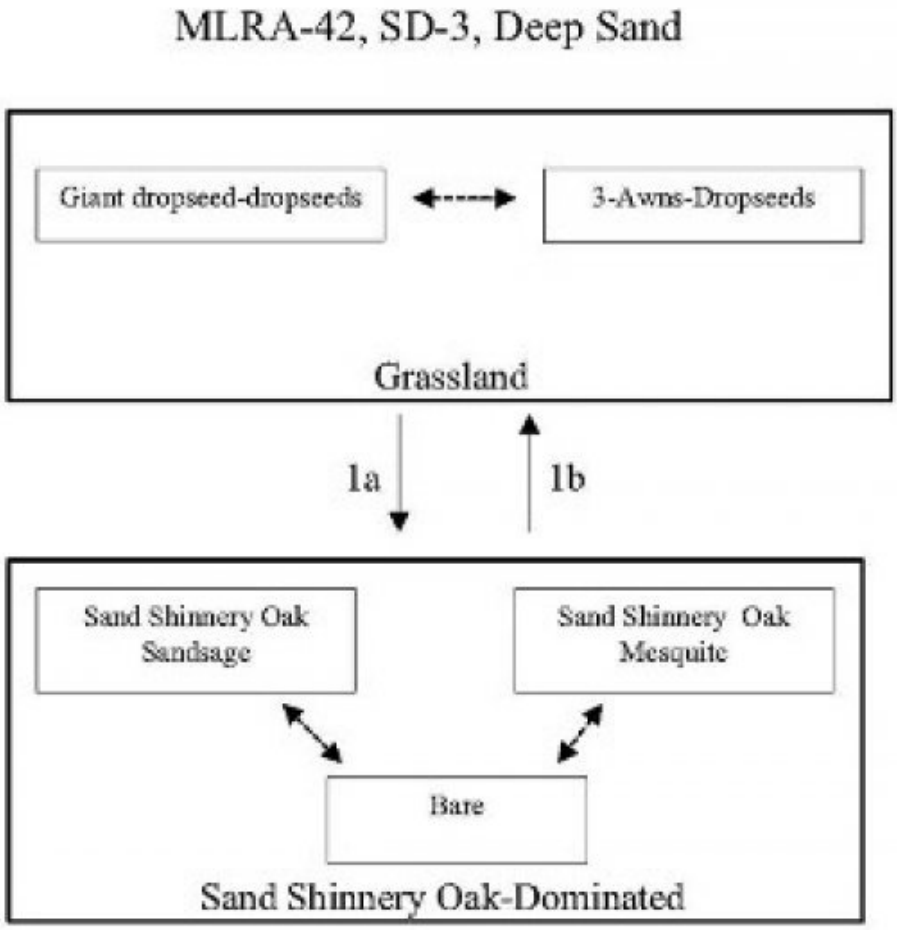
Ecological dynamics

Overview

The Deep Sand site occurs adjacent to and/or intergraded with the Sandhills and Sandy sites (SD-3). The Deep Sand site can be distinguished by slopes less than eight percent (approximately five percent) and textural changes at depths greater than 40 inches. The Deep Sand site has well drained soils with a surface texture of sand or loamy fine sand. The Sandhills site has slopes greater than eight percent and textural depths greater than 60 inches. Conversely, the Sandy site has slopes less than five percent and depths to textural change commonly around 20 inches. The historic plant community of the Deep Sand site is dominated primarily by giant dropseed (*Sporobolus giganteus*) and other dropseeds (*S. flexuosus*, *S. contractus*, *S. cryptandrus*), with scattered shinnery oak (*Quercus havardii*) and soapweed yucca (*Yucca glauca*). Other herbaceous species include threeawns (Aristida spp.), bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), and annual and perennial forbs distributed relative to precipitation occurrences. Bare ground and litter compose a significant proportion of ground cover while grasses are the remainder. Shinnery oak will increase with an associated decrease in dropseed and bluestem abundance possibly due to climatic change, fire suppression, interspecific competition, and excessive grazing. Continued grass cover loss may result in a transition to a shinnery oak dominated state with increases in sand sage (*Artemisia filifolia*) and honey mesquite (*Prosopis glandulosa*). However, brush management may restore the grassland component and reverse the shinnery oak state back toward the historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram)



1.a Climate, fire suppression, competition, over grazing

1.b Brush control, Prescribed grazing

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

State Containing Historic Plant Community Grassland: The historic plant community is dominated by giant dropseed, other dropseeds, threeawns, and bluestems. Dominant woody plants include shinnery oak and soapweed yucca. Forb abundance and distribution varies and is dependent on annual rainfall. The Deep Sand site typically exists in sandy plains and dunes (Sosebee 1983). Grass dominance stabilizes the potentially erosive sandy soils. Historical fire suppression, however, may have contributed to increased woody plant abundance, which has reduced grass species. Further, drought conditions compounded with excessive grazing likely has driven most grass species out of competition with shrubs which has resulted in a shinnery oak dominated state with sand sage and mesquite (Young et al. 1948). Diagnosis: Grassland dominated by dropseeds, threeawns, and bluestems. Small shrubs, such as shinnery oak and soapweed yucca, and subshrubs are dispersed throughout the grassland. Other grasses that could appear on this site would include: flatsedge, almejita signalgrass, big bluestem, Indiangrass, fall witchgrass, hairy grama and red lovegrass Other shrubs include: fourwing saltbush, mesquite, ephedra and broom snakeweed. Other forbs include: wooly and scarlet gaura, wooly dalea, phlox heliotrope, scorpionweed, deerstongue, fleabane, nama, hoffmanseggia, lemon beebalm and stickleaf.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	396	858	1320
Shrub/Vine	108	234	360
Forb	96	208	320
Total	**600**	**1300**	**2000**

Table 6. Ground cover

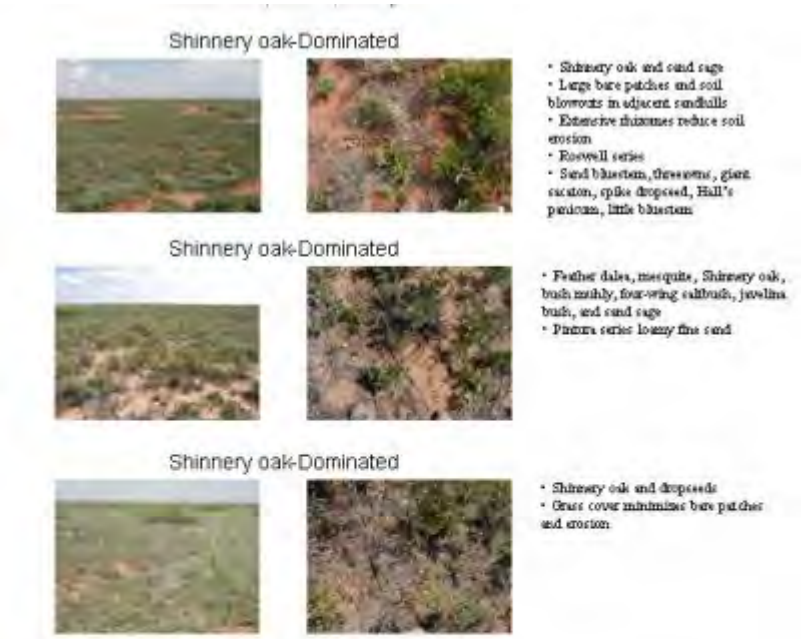
Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	15-20%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	35-40%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	35-40%

Figure 5. Plant community growth curve (percent production by month). NM2805, HCPC. SD-3 Deep Sand - Warm season plant community .

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

State 2
Shinnery Oak Dominated

Community 2.1
Shinnery Oak Dominated



Shinnery Oak Dominated: This state is dominated by shinnery oak with subdominants of sand sage or mesquite. Bare ground is a significant component in this state as well. shinnery oak is characterized by dense stands in sandy soils; however, as clay percentage increases, shinnery oak decreases. Shinnery oak abundance and distribution increase with disturbances, such as excessive grazing and fire, due to an aggressive rhizome system. As shinnery oak abundance increases, an associated increase of mesquite, sand sage, and soapweed yucca also occurs. Shinnery oak's extensive root system allows the oak to competitively exclude grasses and forbs. Sand sage, however, stabilizes light sandy soils from wind erosion and can co-exist with herbaceous species by protecting them in heavily grazed conditions (Davis and Bonham 1979). Shinnery oak has been found primarily in very deep, excessively drained, and rapidly permeable soils. Shinnery oak is associated with landforms which are gently undulating to rolling uplands, very gently sloping to moderately steep slopes, and upland plains, alluvial fans and valley sideslopes. Shinnery oak and sand sage can be controlled with herbicide if applied in the spring with a subsequent rest from grazing (Herbel et al. 1979, Pettit 1986). In addition, repetitive seasons of goat browsing can also reduce shinnery oak abundance. Patches should be maintained during brush control, however, to prevent erosion and to provide wildlife cover and forage. Further, as shinnery oak and other shrubs increase, bare patches and erosion will increase due to a lack of herbaceous ground cover. Diagnosis: Shinnery oak dominated with subdominant sand sage, honey mesquite, and soapweed yucca with increasing frequency and size of bare patches. Transition to Shinnery oak dominated state (1a): The historic plant community begins to shift toward the shinnery oak dominated state as drivers such as climate change, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by an increase of shrub species abundance and bare patch expansion. Key indicators of approach to transition: • Loss of grass and forb cover • Surface soil erosion • Bare patch expansion • Increased shrub species abundance and composition Transition to Historic Plant Community (1b): The shinnery oak dominated state may transition back toward the historic plant community as new drivers are introduced such as prescribed grazing, brush control, and discontinued drought conditions.

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**			450–585	
	spike dropseed	SPCO4	*Sporobolus contractus*	450–585	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	450–585	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	450–585	–
	giant dropseed	SPGI	*Sporobolus giganteus*	450–585	–
2	**Warm Season**			65–104	
	sand bluestem	ANHA	*Andropogon hallii*	65–104	–
	little bluestem	SCSC	*Schizachyrium scoparium*	65–104	–
3	**Warm Season**			39–91	
	threeawn	ARIST	*Aristida*	39–91	–
4	**Warm Season**			13–39	
	thin paspalum	PASE5	*Paspalum setaceum*	13–39	–
5	**Warm Season**			13–39	
	black grama	BOER4	*Bouteloua eriopoda*	13–39	–
6	**Warm Season**			13–39	
	mat sandbur	CELO3	*Cenchrus longispinus*	13–39	–
7	**Warm Season**			13–39	
	Havard's panicgrass	PAHA2	*Panicum havardii*	13–39	–
8	**Warm Season**			13–65	
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	13–65	–
9	**Other Annual Grasses**			13–65	
	Grass, annual	2GA	*Grass, annual*	13–65	–
Shrub/Vine					
10	**Shrub**			65–130	
	Havard oak	QUHA3	*Quercus havardii*	65–130	–
11	**Shrub**			13–39	
	sand sagebrush	ARFI2	*Artemisia filifolia*	13–39	–
12	**Shrub**			65–130	
	yucca	YUCCA	*Yucca*	65–130	–
13	**Shrub**			13–39	
	rabbitbrush	CHRYS9	*Chrysothamnus*	13–39	–
14	**Other Shrubs**			13–39	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	13–39	–
Forb					
15	**Forb**			39–91	
	croton	CROTO	*Croton*	39–91	–
	Indian blanket	GAPU	*Gaillardia pulchella*	39–91	–
16	**Forb**			39–91	
	aster	ASTER	*Aster*	39–91	–
	whitest evening primrose	OEAL	*Oenothera albicaulis*	39–91	–
	beardtongue	PENST	*Penstemon*	39–91	–
17	**Forb**			39–91	
	touristplant	DIWI2	*Dimorphocarpa wislizeni*	39–91	–

	[illegible]	[illegible]	[illegible]	[illegible]	
	buckwheat	ERIOG	*Eriogonum*	39–91	–
	sunflower	HELIA3	*Helianthus*	39–91	–
	spiny false fiddleleaf	HYSP	*Hydrolea spinosa*	39–91	–
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	39–91	–
18	**Other Forbs**			13–65	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	13–65	–

Animal community

This site provides habitat which supports a resident animal population characterized by pronghorn, antelope, black-tailed jackrabbit, spotted ground squirrel, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, meadowlark, roadrunner, white-necked raven, cactus wren, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake and ornate box turtle. In the area called Mescalero Sands, there are white-tailed and mule deer.

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
Anthony B
Bluepoint A
Kermit A
Aguena A
Likes A
Pintura A

Recreational uses

This site offers limited recreation potential for hiking, horseback riding, nature observation and photography; game bird, predator, antelope, and deer hunting.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. Shinnery oak is toxic in the late bud or early leaf stage. Shinnery oak will increase, as will sand sagebrush following drought. Changes in the fire return interval have also favored an increase in shrub cover. The dropseeds and bluestem will decrease. This site responds very well to brush manangement and deferment. This site is well suited to a grazing system that rotates the season of use. Nesting habitat for lesser prairie chicken can be improved by providing residual cover that is at least 14 inches high.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index Ac/AUM
100 - 76 2.0 – 3.8
75 – 51 3.0 – 6.0

50 – 26 5.0 – 10.0
25 – 0 10.1 +

Inventory data references

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

Other references

Literature Cited

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

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

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

Sosebee, Ronald E. 1983. Physiological, phenological, and environmental considerations in brush and weed control. In: McDaniel, Kirk C., ed. Proceedings--brush management symposium; 1983 February 16; Albuquerque, NM. Denver, CO: Society for Range Management: 27-43.

Young, Vernon A., Anderwald, Frank R.,McCully, Wayne G. 1948. Brush problems on Texas ranges. Miscellaneous Publication 21. College Station, TX: Texas Agricultural Experiment Station. 19 p.

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

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

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

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

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

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

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

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

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

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

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

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

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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

decadence):

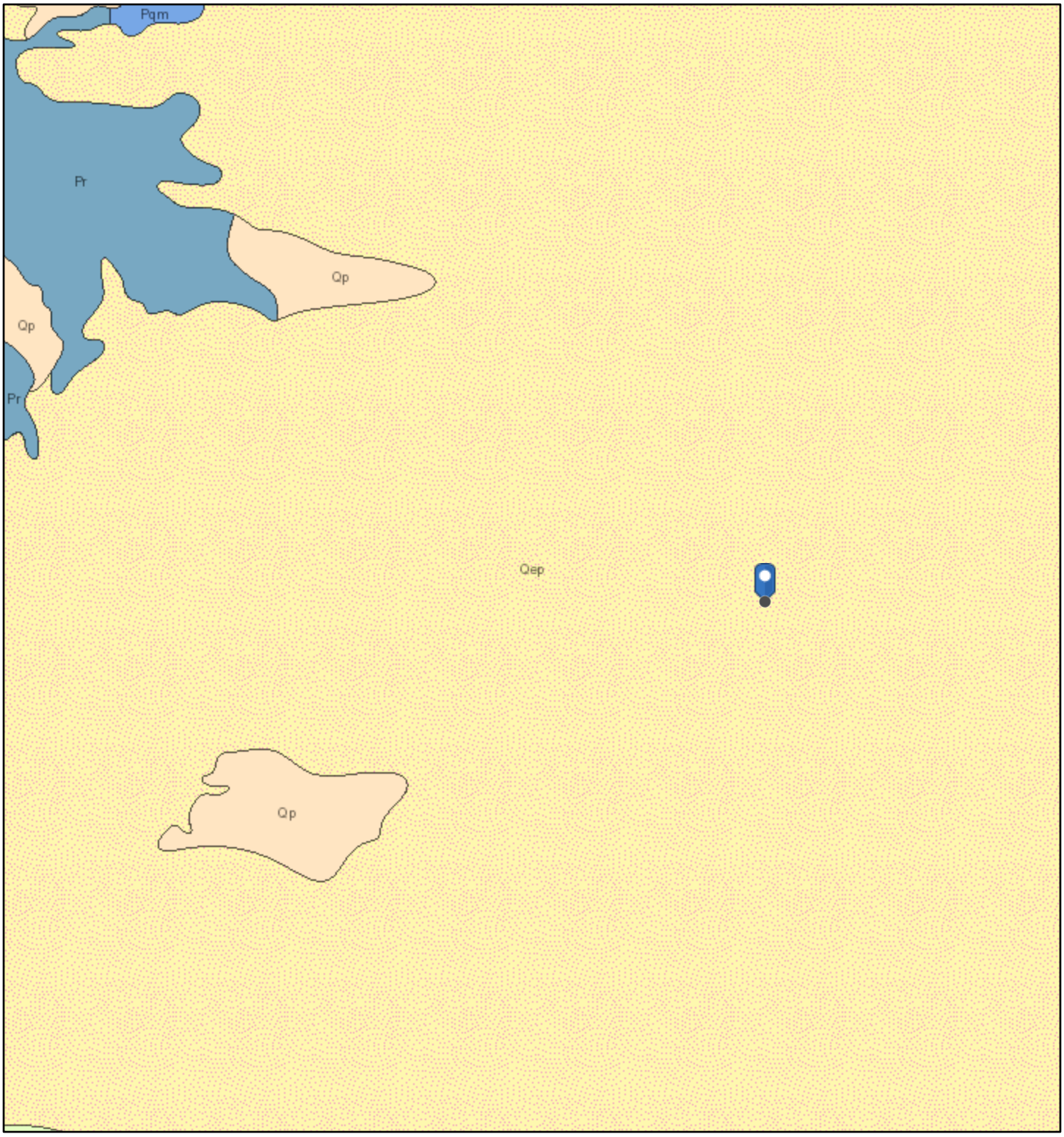
14. **Average percent litter cover (%) and depth (in):**

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

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

17. **Perennial plant reproductive capability:**

13 - ArcGIS Geology Map



3/30/2024, 9:01:43 AM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

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

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

ArcGIS Web AppBuilder

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

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

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 477824
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nRM2014559127**
Incident Name	**NRM2014559127 SDE 31 FEDERAL CTB @ 0**
Incident Type	**Oil Release**
Incident Status	**Remediation Plan Received**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	SDE 31 FEDERAL CTB
Date Release Discovered	12/30/2019
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Equipment Failure | Tank (Any) | Crude Oil | Released: 27 BBL | Recovered: 25 BBL | Lost: 2 BBL.
Produced Water Released (bbls) Details	*Not answered.*
Is the concentration of chloride in the produced water >10,000 mg/l	*Not answered.*
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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: 477824
	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.**

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: 06/23/2025

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: 477824
	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	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	21000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	30880
GRO+DRO (EPA SW-846 Method 8015M)	21000
BTEX (EPA SW-846 Method 8021B or 8260B)	90
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	07/07/2025
On what date will (or did) the final sampling or liner inspection occur	08/20/2025
On what date will (or was) the remediation complete(d)	10/05/2025
What is the estimated surface area (in square feet) that will be reclaimed	27296
What is the estimated volume (in cubic yards) that will be reclaimed	4043
What is the estimated surface area (in square feet) that will be remediated	3013
What is the estimated volume (in cubic yards) that will be remediated	90
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: 477824
	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: 06/23/2025
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.	

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: 477824
	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

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:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	Action Number: 477824
	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

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

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 477824
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	The remediation plan is approved for the SDE 31 Federal CTB.	7/1/2025