General Information

NMOCD District:	2 - Artesia	Incident ID:	nMLB1122849738, nMLB1122852054
Landowner:	Federal (BLM)	API:	30-015-27106
Client:	Devon Energy	Site Location:	Todd 27 Federal 16
Date:	March 26, 2025	Project #:	25A-01217
Client Contact:	Jim Raley	Phone #:	575.689.7597
Vertex PM:	Sally Carttar	Phone #:	575.361.3561

Objective

The objective of the environmental remediation work plan is to identify exceedances found during the site assessment/characterization activity and propose an appropriate remediation technique to address these areas. Areas of environmental concern identified and delineated include pasture immediately south and adjacent to the lease road. Closure criteria have been selected as per New Mexico Administrative Code (NMAC) 19.15.29. The closure criteria for the site are presented below.

Table 1. Closure Criteria for Soils to Remediation & Reclamation Standards

	Constituent	Limit
0-4 feet bgs (19.15.29.13)	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
DTGW > 100 feet (19.15.29.12)	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

bgs – below ground surface
DTGW – depth to groundwater
TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics
BTEX – benzene, toluene, ethylbenzene and xylenes

Site Assessment/Characterization

Site characterization was completed on April 20, 2023. A total of 15 sample points were established and samples collected for field screening. As the depth to groundwater at the site is greater than 100 feet bgs, vertical delineation is not required. In total, 43 samples were submitted to Hall Environmental Analysis Laboratory, Albuquerque, New Mexico for analysis. The sample locations and approximate areas of impact 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); exceedances to criteria are identified in the table as bold with grey or green background. Laboratory data reports and Daily Field Report are included in Attachment 3 and Attachment 4, respectively. All applicable research as it pertains to closure criteria selection is presented in Attachment 5.

Remedial Activities

General

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation. Laboratory results from the site assessment/characterization have been referenced to estimate both the vertical and horizontal limits of the impacts and the volume of soil to be removed. Soil will be excavated to the extents of the known contamination or in 2-foot increments, and field screening will be utilized to confirm removal of impacted soil below the applicable closure criteria. Impacted soil will be stored on a 30mil

liner prior to disposal at an approved facility. Once excavation is complete, confirmatory samples will be collected and laboratory analysis completed to confirm closure criteria guidelines are met. Excavations will be backfilled with clean soil sourced locally.

nMLB1122849738 (June 24, 2011) and nMLB1122852054 (July 25, 2011) - Release into Pasture

Exceedances to reclamation closure criteria were identified at BH23-03 and BH23-07 south of and adjacent to the lease road and will be remediated to closure criteria via excavation. Heavy equipment will be used to complete excavation in areas free of infrastructure or equipment. A hydrovac truck may be utilized to identify utility and buried pipelines where necessary, and hand tools will be utilized to remove contaminated soil in close proximity to equipment, buried utilities, and pipelines. Field screening will be utilized to find the horizontal and vertical extents of the spill area. Confirmation samples will be collected as per New Mexico Oil Conservation Division (NMOCD) guidance and submitted for laboratory analysis of all applicable parameters. Surfaces of the final extents of the excavation will meet NMOCD reclamation closure criteria for depth to groundwater greater than 100 feet bgs. The remediation area is approximately 418 and square feet as presented on Figure 1 (Attachment 1). Excavation is planned to be completed within 90 days of approval of this Environmental Site Remediation Work Plan. The estimated volume to be excavated is approximately **61 cubic yards**.

Sample Point	Excavation Depth	Remediation Method
BH23-03	2'	Excavator
BH23-07	4'	Excavator

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

Lakin Pullman
Lakin Pullman
ENVIRONMENTAL SPECIALIST, REPORTING

March 26, 2025
Date

Sally Carttar
Sally Carttar, BA
PROJECT MANAGER, REPORT REVIEW

April 8, 2025
Date

Attachments

Attachment 1: Figures
Attachment 2: Initial Characterization Sample Laboratory Results
Attachment 3. Laboratory Data Reports and Chain of Custody Forms
Attachment 4. Daily Field Report with Photographs
Attachment 5. Closure Criteria Research

ATTACHMENT 1

VERTEX

0 10 20 ft

NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Map Center:
Lat/Long: 32.268675°N, 103.75865°W

Date: Mar 24/25

N

Characterization Sampling Site Schematic
Todd 27 P Federal #016

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.

ATTACHMENT 2

Client Name: Devon Energy Production Company, LP
Site Name: Todd 27 P Federal #016
NMOCD Tracking #: nMLB1122849738, nMLB1122852054
Project #: 25A-01217
Lab Reports: 2304914 and 2304959

Table 2. Initial Characterization Sample Field Screen and Laboratory Results

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)
			Depth to Groundwater >100 feet bgs							
BH23-01	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	320
	4	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	580
	5	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	**710**
BH23-02	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	320
	4	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	350
BH23-03	0	April 19, 2023	ND	ND	ND	52	100	52	**152**	**1000**
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	260
	4	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	190
BH23-04	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	4	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	380
BH23-05	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	68
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	250
BH23-06	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	240
BH23-07	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	**1300**
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	270
	4	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	**1600**
BH23-08	0	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	4	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	110
	5	April 19, 2023	ND	ND	ND	ND	ND	ND	ND	**880**
BH23-09	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	140
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	240
	4	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	260
BH23-10	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	140
	4	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	140
BH23-11	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	98
	4	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	250

Client Name: Devon Energy Production Company, LP
Site Name: Todd 27 P Federal #016
NMOCD Tracking #: nMLB1122849738, nMLB1122852054
Project #: 25A-01217
Lab Reports: 2304914 and 2304959

Table 2. Initial Characterization Sample Field Screen and Laboratory Results

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)
			Depth to Groundwater >100 feet bgs							
BH23-12	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	180
	4	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	220
BH23-13	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	85
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	95
	4	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	180
BH23-14	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	78
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	140
BH23-15	0	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	61
	2	April 20, 2023	ND	ND	ND	ND	ND	ND	ND	270

"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

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

April 28, 2023

Kent Stallings

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

RE: Todd 27 P Federal 016 OrderNo.: 2304914

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 24 sample(s) on 4/21/2023 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 0'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 10:45:00 AM
Lab ID: 2304914-001 **Matrix:** SOIL
Received Date: 4/21/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/25/2023 5:45:22 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 5:45:22 AM
Surr: DNOP	84.8	69-147		%Rec	1	4/25/2023 5:45:22 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 9:32:39 PM
Surr: BFB	112	37.7-212		%Rec	1	4/24/2023 9:32:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 9:32:39 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 9:32:39 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 9:32:39 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/24/2023 9:32:39 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/24/2023 9:32:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	4/24/2023 3:09:14 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-01 2'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 10:50:00 AM
Lab ID: 2304914-002 **Matrix:** SOIL **Received Date:** 4/21/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/25/2023 6:09:01 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2023 6:09:01 AM
Surr: DNOP	79.3	69-147		%Rec	1	4/25/2023 6:09:01 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/24/2023 9:56:12 PM
Surr: BFB	109	37.7-212		%Rec	1	4/24/2023 9:56:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	4/24/2023 9:56:12 PM
Toluene	ND	0.050		mg/Kg	1	4/24/2023 9:56:12 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/24/2023 9:56:12 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2023 9:56:12 PM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	4/24/2023 9:56:12 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	320	60		mg/Kg	20	4/24/2023 3:21:39 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 4'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 10:55:00 AM
Lab ID: 2304914-003 **Matrix:** SOIL **Received Date:** 4/21/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	4/25/2023 6:32:40 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	4/25/2023 6:32:40 AM
Surr: DNOP	78.3	69-147		%Rec	1	4/25/2023 6:32:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 10:19:44 PM
Surr: BFB	116	37.7-212		%Rec	1	4/24/2023 10:19:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 10:19:44 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 10:19:44 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 10:19:44 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/24/2023 10:19:44 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/24/2023 10:19:44 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	580	60		mg/Kg	20	4/24/2023 3:34:03 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 5'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 12:00:00 PM
Lab ID: 2304914-004 **Matrix:** SOIL **Received Date:** 4/21/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	4/25/2023 6:56:20 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/25/2023 6:56:20 AM
Surr: DNOP	78.9	69-147		%Rec	1	4/25/2023 6:56:20 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 10:43:10 PM
Surr: BFB	113	37.7-212		%Rec	1	4/24/2023 10:43:10 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	4/24/2023 10:43:10 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 10:43:10 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 10:43:10 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/24/2023 10:43:10 PM
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	4/24/2023 10:43:10 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	710	60		mg/Kg	20	4/24/2023 3:46:28 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 0'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:00:00 AM
Lab ID: 2304914-005 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 1:12:31 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/24/2023 1:12:31 PM
Surr: DNOP	105	69-147		%Rec	1	4/24/2023 1:12:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 8:14:00 PM
Surr: BFB	93.4	37.7-212		%Rec	1	4/24/2023 8:14:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 8:14:00 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 8:14:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 8:14:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/24/2023 8:14:00 PM
Surr: 4-Bromofluorobenzene	85.2	70-130		%Rec	1	4/24/2023 8:14:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	4/24/2023 3:58:53 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 2'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:05:00 AM
Lab ID: 2304914-006 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 1:44:36 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/24/2023 1:44:36 PM
Surr: DNOP	107	69-147		%Rec	1	4/24/2023 1:44:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/24/2023 9:19:00 PM
Surr: BFB	95.3	37.7-212		%Rec	1	4/24/2023 9:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 9:19:00 PM
Toluene	ND	0.048		mg/Kg	1	4/24/2023 9:19:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/24/2023 9:19:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/24/2023 9:19:00 PM
Surr: 4-Bromofluorobenzene	85.1	70-130		%Rec	1	4/24/2023 9:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	320	60		mg/Kg	20	4/24/2023 4:36:07 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 4'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:10:00 AM
Lab ID: 2304914-007 **Matrix:** SOIL **Received Date:** 4/21/2023 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	9.2		mg/Kg	1	4/24/2023 1:55:21 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/24/2023 1:55:21 PM
Surr: DNOP	97.5	69-147		%Rec	1	4/24/2023 1:55:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/24/2023 10:23:00 PM
Surr: BFB	90.5	37.7-212		%Rec	1	4/24/2023 10:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/24/2023 10:23:00 PM
Toluene	ND	0.050		mg/Kg	1	4/24/2023 10:23:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/24/2023 10:23:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/24/2023 10:23:00 PM
Surr: 4-Bromofluorobenzene	84.3	70-130		%Rec	1	4/24/2023 10:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	350	60		mg/Kg	20	4/24/2023 4:48:32 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 0'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:15:00 AM
Lab ID: 2304914-008 **Matrix:** SOIL
Received Date: 4/21/2023 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)	52	10		mg/Kg	1	4/25/2023 2:17:57 AM
Motor Oil Range Organics (MRO)	100	50		mg/Kg	1	4/25/2023 2:17:57 AM
Surr: DNOP	102	69-147		%Rec	1	4/25/2023 2:17:57 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/24/2023 10:45:00 PM
Surr: BFB	86.6	37.7-212		%Rec	1	4/24/2023 10:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/24/2023 10:45:00 PM
Toluene	ND	0.050		mg/Kg	1	4/24/2023 10:45:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/24/2023 10:45:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/24/2023 10:45:00 PM
Surr: 4-Bromofluorobenzene	82.5	70-130		%Rec	1	4/24/2023 10:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	1000	60		mg/Kg	20	4/24/2023 5:00:57 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 2'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:20:00 AM
Lab ID: 2304914-009 **Matrix:** SOIL **Received Date:** 4/21/2023 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	8.6		mg/Kg	1	4/24/2023 2:16:49 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	4/24/2023 2:16:49 PM
Surr: DNOP	94.2	69-147		%Rec	1	4/24/2023 2:16:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 11:06:00 PM
Surr: BFB	90.6	37.7-212		%Rec	1	4/24/2023 11:06:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 11:06:00 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 11:06:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 11:06:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/24/2023 11:06:00 PM
Surr: 4-Bromofluorobenzene	84.4	70-130		%Rec	1	4/24/2023 11:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	260	60		mg/Kg	20	4/24/2023 5:13:22 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 4'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:25:00 AM
Lab ID: 2304914-010 **Matrix:** SOIL
Received Date: 4/21/2023 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	4/24/2023 2:27:36 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/24/2023 2:27:36 PM
Surr: DNOP	91.1	69-147		%Rec	1	4/24/2023 2:27:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 11:28:00 PM
Surr: BFB	89.1	37.7-212		%Rec	1	4/24/2023 11:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 11:28:00 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 11:28:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 11:28:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/24/2023 11:28:00 PM
Surr: 4-Bromofluorobenzene	85.1	70-130		%Rec	1	4/24/2023 11:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	190	60		mg/Kg	20	4/24/2023 5:25:46 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 0'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:30:00 AM
Lab ID: 2304914-011 **Matrix:** SOIL
Received Date: 4/21/2023 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	4/24/2023 2:38:23 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/24/2023 2:38:23 PM
Surr: DNOP	94.3	69-147		%Rec	1	4/24/2023 2:38:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/24/2023 11:50:00 PM
Surr: BFB	89.8	37.7-212		%Rec	1	4/24/2023 11:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/24/2023 11:50:00 PM
Toluene	ND	0.049		mg/Kg	1	4/24/2023 11:50:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/24/2023 11:50:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/24/2023 11:50:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	4/24/2023 11:50:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	61		mg/Kg	20	4/24/2023 5:38:10 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 2'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:35:00 AM
Lab ID: 2304914-012 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 2:49:12 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/24/2023 2:49:12 PM
Surr: DNOP	98.8	69-147		%Rec	1	4/24/2023 2:49:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 12:11:00 AM
Surr: BFB	93.1	37.7-212		%Rec	1	4/25/2023 12:11:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/25/2023 12:11:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 12:11:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 12:11:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	4/25/2023 12:11:00 AM
Surr: 4-Bromofluorobenzene	86.5	70-130		%Rec	1	4/25/2023 12:11:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	4/24/2023 5:50:34 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 4'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 11:40:00 AM
Lab ID: 2304914-013 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 3:10:41 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/24/2023 3:10:41 PM
Surr: DNOP	93.8	69-147		%Rec	1	4/24/2023 3:10:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/25/2023 12:33:00 AM
Surr: BFB	92.4	37.7-212		%Rec	1	4/25/2023 12:33:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/25/2023 12:33:00 AM
Toluene	ND	0.050		mg/Kg	1	4/25/2023 12:33:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/25/2023 12:33:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/25/2023 12:33:00 AM
Surr: 4-Bromofluorobenzene	86.5	70-130		%Rec	1	4/25/2023 12:33:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	380	60		mg/Kg	20	4/24/2023 6:02:59 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-05 0'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:00:00 PM
Lab ID: 2304914-014 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 3:21:36 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/24/2023 3:21:36 PM
Surr: DNOP	72.8	69-147		%Rec	1	4/24/2023 3:21:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/25/2023 12:54:00 AM
Surr: BFB	89.4	37.7-212		%Rec	1	4/25/2023 12:54:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/25/2023 12:54:00 AM
Toluene	ND	0.050		mg/Kg	1	4/25/2023 12:54:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/25/2023 12:54:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/25/2023 12:54:00 AM
Surr: 4-Bromofluorobenzene	83.2	70-130		%Rec	1	4/25/2023 12:54:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	68	59		mg/Kg	20	4/24/2023 4:04:33 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 2'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 1:05:00 PM
Lab ID: 2304914-015 **Matrix:** SOIL **Received Date:** 4/21/2023 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	9.6		mg/Kg	1	4/24/2023 3:32:33 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/24/2023 3:32:33 PM
Surr: DNOP	88.8	69-147		%Rec	1	4/24/2023 3:32:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/25/2023 1:37:00 AM
Surr: BFB	93.6	37.7-212		%Rec	1	4/25/2023 1:37:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	4/25/2023 1:37:00 AM
Toluene	ND	0.047		mg/Kg	1	4/25/2023 1:37:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	4/25/2023 1:37:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	4/25/2023 1:37:00 AM
Surr: 4-Bromofluorobenzene	86.7	70-130		%Rec	1	4/25/2023 1:37:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	250	60		mg/Kg	20	4/24/2023 4:41:48 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 0'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:10:00 PM
Lab ID: 2304914-016 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 3:43:26 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/24/2023 3:43:26 PM
Surr: DNOP	90.0	69-147		%Rec	1	4/24/2023 3:43:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 1:59:00 AM
Surr: BFB	93.2	37.7-212		%Rec	1	4/25/2023 1:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/25/2023 1:59:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 1:59:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 1:59:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/25/2023 1:59:00 AM
Surr: 4-Bromofluorobenzene	86.4	70-130		%Rec	1	4/25/2023 1:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	4/24/2023 4:54:13 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 2'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:15:00 PM
Lab ID: 2304914-017 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 4:04:59 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/24/2023 4:04:59 PM
Surr: DNOP	88.8	69-147		%Rec	1	4/24/2023 4:04:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 2:20:00 AM
Surr: BFB	92.6	37.7-212		%Rec	1	4/25/2023 2:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/25/2023 2:20:00 AM
Toluene	ND	0.048		mg/Kg	1	4/25/2023 2:20:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	4/25/2023 2:20:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	4/25/2023 2:20:00 AM
Surr: 4-Bromofluorobenzene	87.6	70-130		%Rec	1	4/25/2023 2:20:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	240	60		mg/Kg	20	4/24/2023 5:06:37 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-07 0'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 1:20:00 PM
Lab ID: 2304914-018 **Matrix:** SOIL **Received Date:** 4/21/2023 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	9.6		mg/Kg	1	4/24/2023 4:15:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/24/2023 4:15:54 PM
Surr: DNOP	87.2	69-147		%Rec	1	4/24/2023 4:15:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 2:42:00 AM
Surr: BFB	92.1	37.7-212		%Rec	1	4/25/2023 2:42:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/25/2023 2:42:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 2:42:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 2:42:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	4/25/2023 2:42:00 AM
Surr: 4-Bromofluorobenzene	87.1	70-130		%Rec	1	4/25/2023 2:42:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	1300	60		mg/Kg	20	4/24/2023 5:43:51 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-07 2'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:25:00 PM
Lab ID: 2304914-019 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 4:26:47 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/24/2023 4:26:47 PM
Surr: DNOP	94.2	69-147		%Rec	1	4/24/2023 4:26:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 3:04:00 AM
Surr: BFB	94.7	37.7-212		%Rec	1	4/25/2023 3:04:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/25/2023 3:04:00 AM
Toluene	ND	0.048		mg/Kg	1	4/25/2023 3:04:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	4/25/2023 3:04:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	4/25/2023 3:04:00 AM
Surr: 4-Bromofluorobenzene	88.6	70-130		%Rec	1	4/25/2023 3:04:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	270	59		mg/Kg	20	4/24/2023 6:33:29 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-07 4'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:30:00 PM
Lab ID: 2304914-020 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 4:37:41 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/24/2023 4:37:41 PM
Surr: DNOP	87.1	69-147		%Rec	1	4/24/2023 4:37:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 3:25:00 AM
Surr: BFB	94.3	37.7-212		%Rec	1	4/25/2023 3:25:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/25/2023 3:25:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 3:25:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 3:25:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	4/25/2023 3:25:00 AM
Surr: 4-Bromofluorobenzene	88.6	70-130		%Rec	1	4/25/2023 3:25:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	1600	60		mg/Kg	20	4/24/2023 7:35:32 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-08 0'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 1:35:00 PM
Lab ID: 2304914-021 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 4:48:31 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/24/2023 4:48:31 PM
Surr: DNOP	93.0	69-147		%Rec	1	4/24/2023 4:48:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 3:47:00 AM
Surr: BFB	91.4	37.7-212		%Rec	1	4/25/2023 3:47:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/25/2023 3:47:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 3:47:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 3:47:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	4/25/2023 3:47:00 AM
Surr: 4-Bromofluorobenzene	86.5	70-130		%Rec	1	4/25/2023 3:47:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	4/24/2023 7:47:57 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 2'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:40:00 PM
Lab ID: 2304914-022 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 4:59:25 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	4/24/2023 4:59:25 PM
Surr: DNOP	94.9	69-147		%Rec	1	4/24/2023 4:59:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/25/2023 4:09:00 AM
Surr: BFB	88.8	37.7-212		%Rec	1	4/25/2023 4:09:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/25/2023 4:09:00 AM
Toluene	ND	0.050		mg/Kg	1	4/25/2023 4:09:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	4/25/2023 4:09:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/25/2023 4:09:00 AM
Surr: 4-Bromofluorobenzene	85.8	70-130		%Rec	1	4/25/2023 4:09:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	59		mg/Kg	20	4/24/2023 8:00:21 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-08 4'
Project: Todd 27 P Federal 016
Collection Date: 4/19/2023 1:45:00 PM
Lab ID: 2304914-023 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 5:10:15 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/24/2023 5:10:15 PM
Surr: DNOP	96.1	69-147		%Rec	1	4/24/2023 5:10:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 4:30:00 AM
Surr: BFB	89.4	37.7-212		%Rec	1	4/25/2023 4:30:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/25/2023 4:30:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 4:30:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 4:30:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	4/25/2023 4:30:00 AM
Surr: 4-Bromofluorobenzene	84.9	70-130		%Rec	1	4/25/2023 4:30:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	110	60		mg/Kg	20	4/24/2023 8:12:46 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 **2304914**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 5'
Project: Todd 27 P Federal 016 **Collection Date:** 4/19/2023 1:50:00 PM
Lab ID: 2304914-024 **Matrix:** SOIL **Received Date:** 4/21/2023 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	4/24/2023 5:21:05 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/24/2023 5:21:05 PM
Surr: DNOP	94.2	69-147		%Rec	1	4/24/2023 5:21:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 4:52:00 AM
Surr: BFB	94.1	37.7-212		%Rec	1	4/25/2023 4:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/25/2023 4:52:00 AM
Toluene	ND	0.049		mg/Kg	1	4/25/2023 4:52:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/25/2023 4:52:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/25/2023 4:52:00 AM
Surr: 4-Bromofluorobenzene	89.6	70-130		%Rec	1	4/25/2023 4:52:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	880	61		mg/Kg	20	4/24/2023 8:25:10 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **MB-74509** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **74509** RunNo: **96264**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3486650** Units: **mg/Kg**

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

Sample ID: **LCS-74509** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **74509** RunNo: **96264**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3486651** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.7	90	110			

Sample ID: **MB-74513** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **74513** RunNo: **96286**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3486770** Units: **mg/Kg**

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

Sample ID: **LCS-74513** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **74513** RunNo: **96286**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3486771** 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-74525** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **74525** RunNo: **96286**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3486802** Units: **mg/Kg**

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

Sample ID: **LCS-74525** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **74525** RunNo: **96286**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3486803** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **LCS-74508** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **74508** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3485596** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.6	69	147			

Sample ID: **MB-74508** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **74508** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3485597** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		86.2	69	147			

Sample ID: **2304914-005AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-02 0'** Batch ID: **74498** RunNo: **96255**
Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3486477** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	37	8.6	42.92	0	85.3	54.2	135			
Surr: DNOP	3.6		4.292		85.0	69	147			

Sample ID: **2304914-005AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-02 0'** Batch ID: **74498** RunNo: **96255**
Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3486478** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	49.95	0	91.9	54.2	135	22.6	29.2	
Surr: DNOP	4.9		4.995		97.6	69	147	0	0	

Sample ID: **LCS-74498** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **74498** RunNo: **96255**
Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3486556** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.9	61.9	130			
Surr: DNOP	4.8		5.000		96.2	69	147			

Sample ID: **MB-74498** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **74498** RunNo: **96255**
Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3486560** 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#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **MB-74498**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **74498**	RunNo: **96255**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3486560** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.6		10.00		96.4	69	147			

Sample ID: **MB-74530**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **74530**	RunNo: **96291**
Prep Date: **4/25/2023**	Analysis Date: **4/25/2023**	SeqNo: **3486988** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.7		10.00		77.3	69	147			

Sample ID: **LCS-74530**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **74530**	RunNo: **96291**
Prep Date: **4/25/2023**	Analysis Date: **4/25/2023**	SeqNo: **3486989** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		80.5	69	147			

Sample ID: **MB-74487**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **74487**	RunNo: **96290**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487633** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.1		10.00		81.0	69	147			

Sample ID: **LCS-74487**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **74487**	RunNo: **96290**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487634** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.2	61.9	130			
Surr: DNOP	4.3		5.000		85.1	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#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **GS96248**	RunNo: **96248**
Prep Date:	Analysis Date: **4/24/2023**	SeqNo: **3485326** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2300		1000		230	37.7	212			S

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **GS96248**	RunNo: **96248**
Prep Date:	Analysis Date: **4/24/2023**	SeqNo: **3485328** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		106	37.7	212			

Sample ID: **lcs-74483**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **74483**	RunNo: **96277**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3486417** 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	5400		1000		537	37.7	212			S

Sample ID: **mb-74483**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **74483**	RunNo: **96277**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3486418** 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	1200		1000		115	37.7	212			

Sample ID: **lcs-74492**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487034** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.8	70	130			
Surr: BFB	2000		1000		198	37.7	212			

Sample ID: **mb-74492**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487035** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		91.1	37.7	212			

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#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **2304914-005ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-02 0'**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487037** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.56	0	84.5	70	130			
Surr: BFB	2000		982.3		200	37.7	212			

Sample ID: **2304914-005amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-02 0'**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487038** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.9	24.56	0	82.1	70	130	2.93	20	
Surr: BFB	2000		982.3		201	37.7	212	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#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **100ng btex lcs** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **BS96248** RunNo: **96248**

Prep Date: Analysis Date: **4/24/2023** SeqNo: **3485327** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

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

Client ID: **PBS** Batch ID: **BS96248** RunNo: **96248**

Prep Date: Analysis Date: **4/24/2023** SeqNo: **3485329** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	70	130			

Sample ID: **LCS-74483** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **74483** RunNo: **96277**

Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3486451** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.1	80	120			
Toluene	0.91	0.050	1.000	0	90.8	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.7	80	120			
Xylenes, Total	2.8	0.10	3.000	0	92.1	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	70	130			

Sample ID: **mb-74483** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **74483** RunNo: **96277**

Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3486452** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.99		1.000		98.5	70	130			

Sample ID: **lcs-74492** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **74492** RunNo: **96248**

Prep Date: **4/21/2023** Analysis Date: **4/24/2023** SeqNo: **3487058** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.84	0.025	1.000	0	84.3	80	120			
Toluene	0.85	0.050	1.000	0	85.3	80	120			
Ethylbenzene	0.84	0.050	1.000	0	84.3	80	120			
Xylenes, Total	2.5	0.10	3.000	0	83.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	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#: **2304914**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 P Federal 016

Sample ID: **lcs-74492**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487058** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.88		1.000		88.1	70	130			

Sample ID: **mb-74492**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487059** 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	0.85		1.000		84.6	70	130			

Sample ID: **2304914-006ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-02 2'**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487062** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.024	0.9634	0	82.7	68.8	120			
Toluene	0.81	0.048	0.9634	0	84.3	73.6	124			
Ethylbenzene	0.80	0.048	0.9634	0	83.4	72.7	129			
Xylenes, Total	2.4	0.096	2.890	0	82.5	75.7	126			
Surr: 4-Bromofluorobenzene	0.84		0.9634		86.8	70	130			

Sample ID: **2304914-006amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-02 2'**	Batch ID: **74492**	RunNo: **96248**
Prep Date: **4/21/2023**	Analysis Date: **4/24/2023**	SeqNo: **3487063** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.76	0.024	0.9588	0	79.5	68.8	120	4.41	20	
Toluene	0.80	0.048	0.9588	0	83.2	73.6	124	1.82	20	
Ethylbenzene	0.80	0.048	0.9588	0	83.1	72.7	129	0.889	20	
Xylenes, Total	2.4	0.096	2.876	0	82.2	75.7	126	0.937	20	
Surr: 4-Bromofluorobenzene	0.82		0.9588		85.9	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical 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: 2304914

RcptNo: 1

Received By: Juan Rojas 4/21/2023 7:30:00 AM

Completed By: Tracy Casarrubias 4/21/2023 7:54:30 AM

Reviewed By: JR 4/21/23

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: MB 4/21/23

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	2.5	Good	Yes	Morty		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush 48-hr

Project Name:

Todd 27 P Federal #016

Project #:

22E-02816-19

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman

On Ice: ☐ Yes ☐ No

# of Coolers: 1 Marty

Cooler Temp(including CF): 2.4+0.1=2.5

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. 2304914	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)
04/19/23	10:45	Soil	BH23-01 0'	1, 4oz jar		001	X	X					X			
04/19/23	10:50	Soil	BH23-01 2'	1, 4oz jar		002	X	X					X			
04/19/23	10:55	Soil	BH23-01 4'	1, 4oz jar		003	X	X					X			
04/19/23	12:00	Soil	BH23-01 5'	1, 4oz jar		004	X	X					X			
04/19/23	11:00	Soil	BH23-02 0'	1, 4oz jar		005	X	X					X			
04/19/23	11:05	Soil	BH23-02 2'	1, 4oz jar		006	X	X					X			
04/19/23	11:10	Soil	BH23-02 4'	1, 4oz jar		007	X	X					X			
04/19/23	11:15	Soil	BH23-03 0'	1, 4oz jar		008	X	X					X			
04/19/23	11:20	Soil	BH23-03 2'	1, 4oz jar		009	X	X					X			
04/19/23	11:25	Soil	BH23-03 4'	1, 4oz jar		010	X	X					X			
04/19/23	11:30	Soil	BH23-04 0'	1, 4oz jar		011	X	X					X			
04/19/23	11:35	Soil	BH23-04 2'	1, 4oz jar		012	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
4-20-23	07:00				4/20/23	700
4/20/23	1900			Courier	4/21/23	7:30

Remarks:

Direct bill to Devon, Dale Woodall

cc. kstallings@vertex.ca for Final Report

1/2

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

jmd 4/21/23

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush 48-hr

Project Name: **Todd 27 P Federal #016**

Project #: **22E-02816-19**

Project Manager: Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 1 Mudy

Cooler Temp(including CF): 2.4+0.1=2.5

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. 230494	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)
04/19/23	11:40	Soil	BH23-04 4'	1, 4oz jar		013	X	X					X			
04/19/23	13:00	Soil	BH23-05 0'	1, 4oz jar		014	X	X					X			
04/19/23	13:05	Soil	BH23-05 2'	1, 4oz jar		015	X	X					X			
04/19/23	13:10	Soil	BH23-06 0'	1, 4oz jar		016	X	X					X			
04/19/23	13:15	Soil	BH23-06 2'	1, 4oz jar		017	X	X					X			
04/19/23	13:20	Soil	BH23-07 0'	1, 4oz jar		018	X	X					X			
04/19/23	13:25	Soil	BH23-07 2'	1, 4oz jar		019	X	X					X			
04/19/23	13:30	Soil	BH23-07 4'	1, 4oz jar		020	X	X					X			
04/19/23	13:35	Soil	BH23-08 0'	1, 4oz jar		021	X	X					X			
04/19/23	13:40	Soil	BH23-08 2'	1, 4oz jar		022	X	X					X			
04/19/23	13:45	Soil	BH23-08 4'	1, 4oz jar		023	X	X					X			
04/19/23	13:50	Soil	BH23-08 5'	1, 4oz jar		024	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4-20-23	07:00				4/20/23	700
4/20/23	1900			courier	4/21/23	7:30

Remarks:
Direct bill to Devon, Dale Woodall
cc. kstallings@vertex.ca for Final Report

2/2

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

jm 4/21/23

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

April 28, 2023

Kent Stallings

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

RE: Todd 27 Federal 016 OrderNo.: 2304959

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 19 sample(s) on 4/22/2023 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-09 0'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:10:00 AM
Lab ID: 2304959-001 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 3:00:50 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/25/2023 3:00:50 AM
Surr: DNOP	91.7	69-147		%Rec	1	4/25/2023 3:00:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 3:31:00 PM
Surr: BFB	90.2	37.7-212		%Rec	1	4/25/2023 3:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 4:13:00 PM
Toluene	ND	0.049		mg/Kg	1	4/26/2023 4:13:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/26/2023 4:13:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/26/2023 4:13:00 PM
Surr: 4-Bromofluorobenzene	85.9	70-130		%Rec	1	4/26/2023 4:13:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	140	60		mg/Kg	20	4/24/2023 9:52:00 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-09 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:15:00 AM
Lab ID: 2304959-002 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 3:33:04 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 3:33:04 AM
Surr: DNOP	90.4	69-147		%Rec	1	4/25/2023 3:33:04 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 4:36:00 PM
Surr: BFB	92.6	37.7-212		%Rec	1	4/25/2023 4:36:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 4:34:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 4:34:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 4:34:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/26/2023 4:34:00 PM
Surr: 4-Bromofluorobenzene	88.5	70-130		%Rec	1	4/26/2023 4:34:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	240	60		mg/Kg	20	4/24/2023 10:04:25 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-09 4'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:20:00 AM
Lab ID: 2304959-003 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 3:43:46 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/25/2023 3:43:46 AM
Surr: DNOP	92.0	69-147		%Rec	1	4/25/2023 3:43:46 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 4:58:00 PM
Surr: BFB	87.9	37.7-212		%Rec	1	4/25/2023 4:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.023		mg/Kg	1	4/26/2023 5:39:00 PM
Toluene	ND	0.047		mg/Kg	1	4/26/2023 5:39:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	4/26/2023 5:39:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	4/26/2023 5:39:00 PM
Surr: 4-Bromofluorobenzene	85.7	70-130		%Rec	1	4/26/2023 5:39:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	260	60		mg/Kg	20	4/24/2023 10:16:50 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-10 0'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:25:00 AM
Lab ID: 2304959-004 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 3:54:27 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/25/2023 3:54:27 AM
Surr: DNOP	89.8	69-147		%Rec	1	4/25/2023 3:54:27 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 5:19:00 PM
Surr: BFB	95.2	37.7-212		%Rec	1	4/25/2023 5:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 6:00:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 6:00:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 6:00:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2023 6:00:00 PM
Surr: 4-Bromofluorobenzene	81.9	70-130		%Rec	1	4/26/2023 6:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	4/24/2023 10:29:15 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-10 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:30:00 AM
Lab ID: 2304959-005 **Matrix:** SOIL **Received Date:** 4/22/2023 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	9.6		mg/Kg	1	4/25/2023 4:05:06 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/25/2023 4:05:06 AM
Surr: DNOP	90.2	69-147		%Rec	1	4/25/2023 4:05:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 5:41:00 PM
Surr: BFB	92.1	37.7-212		%Rec	1	4/25/2023 5:41:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 6:22:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 6:22:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 6:22:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2023 6:22:00 PM
Surr: 4-Bromofluorobenzene	85.6	70-130		%Rec	1	4/26/2023 6:22:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	140	59		mg/Kg	20	4/24/2023 10:41:39 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-10 4'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:35:00 AM
Lab ID: 2304959-006 **Matrix:** SOIL **Received Date:** 4/22/2023 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	9.2		mg/Kg	1	4/25/2023 4:15:44 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/25/2023 4:15:44 AM
Surr: DNOP	89.3	69-147		%Rec	1	4/25/2023 4:15:44 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 6:02:00 PM
Surr: BFB	90.7	37.7-212		%Rec	1	4/25/2023 6:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 6:44:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 6:44:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 6:44:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	4/26/2023 6:44:00 PM
Surr: 4-Bromofluorobenzene	87.5	70-130		%Rec	1	4/26/2023 6:44:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	140	60		mg/Kg	20	4/24/2023 10:54:03 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-11 0'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:45:00 AM
Lab ID: 2304959-007 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 4:26:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2023 4:26:21 AM
Surr: DNOP	87.4	69-147		%Rec	1	4/25/2023 4:26:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/25/2023 6:24:00 PM
Surr: BFB	90.7	37.7-212		%Rec	1	4/25/2023 6:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 7:05:00 PM
Toluene	ND	0.049		mg/Kg	1	4/26/2023 7:05:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/26/2023 7:05:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/26/2023 7:05:00 PM
Surr: 4-Bromofluorobenzene	86.5	70-130		%Rec	1	4/26/2023 7:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	4/24/2023 11:06:27 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-11 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:50:00 AM
Lab ID: 2304959-008 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 4:36:57 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2023 4:36:57 AM
Surr: DNOP	92.5	69-147		%Rec	1	4/25/2023 4:36:57 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 6:45:00 PM
Surr: BFB	86.7	37.7-212		%Rec	1	4/25/2023 6:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 7:27:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 7:27:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 7:27:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2023 7:27:00 PM
Surr: 4-Bromofluorobenzene	85.2	70-130		%Rec	1	4/26/2023 7:27:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	98	60		mg/Kg	20	4/24/2023 11:18:51 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-11 4'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 10:55:00 AM
Lab ID: 2304959-009 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 4:58:00 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 4:58:00 AM
Surr: DNOP	90.7	69-147		%Rec	1	4/25/2023 4:58:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/25/2023 7:07:00 PM
Surr: BFB	93.1	37.7-212		%Rec	1	4/25/2023 7:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 7:48:00 PM
Toluene	ND	0.050		mg/Kg	1	4/26/2023 7:48:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/26/2023 7:48:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/26/2023 7:48:00 PM
Surr: 4-Bromofluorobenzene	84.9	70-130		%Rec	1	4/26/2023 7:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	250	60		mg/Kg	20	4/24/2023 11:31:16 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-12 0'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:05:00 AM
Lab ID: 2304959-010 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 5:08:30 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2023 5:08:30 AM
Surr: DNOP	90.0	69-147		%Rec	1	4/25/2023 5:08:30 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 7:28:00 PM
Surr: BFB	90.3	37.7-212		%Rec	1	4/25/2023 7:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 8:31:00 PM
Toluene	ND	0.050		mg/Kg	1	4/26/2023 8:31:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/26/2023 8:31:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/26/2023 8:31:00 PM
Surr: 4-Bromofluorobenzene	83.9	70-130		%Rec	1	4/26/2023 8:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	4/25/2023 12:08:30 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-12 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:10:00 AM
Lab ID: 2304959-011 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 5:18:58 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 5:18:58 AM
Surr: DNOP	92.2	69-147		%Rec	1	4/25/2023 5:18:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 8:12:00 PM
Surr: BFB	90.6	37.7-212		%Rec	1	4/25/2023 8:12:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 8:53:00 PM
Toluene	ND	0.050		mg/Kg	1	4/26/2023 8:53:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/26/2023 8:53:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/26/2023 8:53:00 PM
Surr: 4-Bromofluorobenzene	86.5	70-130		%Rec	1	4/26/2023 8:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	180	60		mg/Kg	20	4/25/2023 12:20:55 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-12 4'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:15:00 AM
Lab ID: 2304959-012 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 5:29:25 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2023 5:29:25 AM
Surr: DNOP	92.2	69-147		%Rec	1	4/25/2023 5:29:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 8:33:00 PM
Surr: BFB	88.1	37.7-212		%Rec	1	4/25/2023 8:33:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 9:15:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 9:15:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 9:15:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2023 9:15:00 PM
Surr: 4-Bromofluorobenzene	85.7	70-130		%Rec	1	4/26/2023 9:15:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	220	60		mg/Kg	20	4/25/2023 12:33:20 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 0'
Project: Todd 27 Federal 016 **Collection Date:** 4/20/2023 11:20:00 AM
Lab ID: 2304959-013 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 5:39:52 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2023 5:39:52 AM
Surr: DNOP	93.1	69-147		%Rec	1	4/25/2023 5:39:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/25/2023 8:55:00 PM
Surr: BFB	87.3	37.7-212		%Rec	1	4/25/2023 8:55:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 9:36:00 PM
Toluene	ND	0.050		mg/Kg	1	4/26/2023 9:36:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/26/2023 9:36:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/26/2023 9:36:00 PM
Surr: 4-Bromofluorobenzene	86.2	70-130		%Rec	1	4/26/2023 9:36:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	85	60		mg/Kg	20	4/25/2023 2:23:45 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-13 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:25:00 AM
Lab ID: 2304959-014 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 5:50:19 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 5:50:19 AM
Surr: DNOP	91.4	69-147		%Rec	1	4/25/2023 5:50:19 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 9:16:00 PM
Surr: BFB	94.5	37.7-212		%Rec	1	4/25/2023 9:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 9:58:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 9:58:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 9:58:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2023 9:58:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	4/26/2023 9:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	95	60		mg/Kg	20	4/25/2023 2:36:09 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 4'
Project: Todd 27 Federal 016 **Collection Date:** 4/20/2023 11:30:00 AM
Lab ID: 2304959-015 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 6:00:48 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/25/2023 6:00:48 AM
Surr: DNOP	95.0	69-147		%Rec	1	4/25/2023 6:00:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 9:38:00 PM
Surr: BFB	93.8	37.7-212		%Rec	1	4/25/2023 9:38:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 10:19:00 PM
Toluene	ND	0.049		mg/Kg	1	4/26/2023 10:19:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/26/2023 10:19:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/26/2023 10:19:00 PM
Surr: 4-Bromofluorobenzene	87.2	70-130		%Rec	1	4/26/2023 10:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	180	60		mg/Kg	20	4/25/2023 2:48:34 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-14 0'
Project: Todd 27 Federal 016 **Collection Date:** 4/20/2023 11:35:00 AM
Lab ID: 2304959-016 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 6:11:18 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 6:11:18 AM
Surr: DNOP	94.1	69-147		%Rec	1	4/25/2023 6:11:18 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/25/2023 10:00:00 PM
Surr: BFB	88.1	37.7-212		%Rec	1	4/25/2023 10:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 10:41:00 PM
Toluene	ND	0.049		mg/Kg	1	4/26/2023 10:41:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/26/2023 10:41:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	4/26/2023 10:41:00 PM
Surr: 4-Bromofluorobenzene	88.1	70-130		%Rec	1	4/26/2023 10:41:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	78	60		mg/Kg	20	4/25/2023 3:00:58 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-14 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:40:00 AM
Lab ID: 2304959-017 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 6:21:49 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/25/2023 6:21:49 AM
Surr: DNOP	91.0	69-147		%Rec	1	4/25/2023 6:21:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 10:21:00 PM
Surr: BFB	90.3	37.7-212		%Rec	1	4/25/2023 10:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 11:02:00 PM
Toluene	ND	0.050		mg/Kg	1	4/26/2023 11:02:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/26/2023 11:02:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/26/2023 11:02:00 PM
Surr: 4-Bromofluorobenzene	87.8	70-130		%Rec	1	4/26/2023 11:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	140	60		mg/Kg	20	4/25/2023 3:38:11 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-15 0'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:45:00 AM
Lab ID: 2304959-018 **Matrix:** SOIL **Received Date:** 4/22/2023 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	4/25/2023 6:32:21 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/25/2023 6:32:21 AM
Surr: DNOP	91.5	69-147		%Rec	1	4/25/2023 6:32:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/25/2023 10:43:00 PM
Surr: BFB	87.1	37.7-212		%Rec	1	4/25/2023 10:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.024		mg/Kg	1	4/26/2023 11:24:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2023 11:24:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2023 11:24:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2023 11:24:00 PM
Surr: 4-Bromofluorobenzene	87.3	70-130		%Rec	1	4/26/2023 11:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	61	60		mg/Kg	20	4/25/2023 3:50:36 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 **2304959**
Date Reported: **4/28/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-15 2'
Project: Todd 27 Federal 016
Collection Date: 4/20/2023 11:50:00 AM
Lab ID: 2304959-019 **Matrix:** SOIL **Received Date:** 4/22/2023 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	9.2		mg/Kg	1	4/25/2023 6:42:54 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/25/2023 6:42:54 AM
Surr: DNOP	94.8	69-147		%Rec	1	4/25/2023 6:42:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/25/2023 11:04:00 PM
Surr: BFB	87.7	37.7-212		%Rec	1	4/25/2023 11:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	4/26/2023 11:46:00 PM
Toluene	ND	0.050		mg/Kg	1	4/26/2023 11:46:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/26/2023 11:46:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	4/26/2023 11:46:00 PM
Surr: 4-Bromofluorobenzene	86.9	70-130		%Rec	1	4/26/2023 11:46:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	270	60		mg/Kg	20	4/25/2023 4:03:01 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.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **MB-74525**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **74525**	RunNo: **96286**
Prep Date: **4/24/2023**	Analysis Date: **4/24/2023**	SeqNo: **3486802** Units: **mg/Kg**

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

Sample ID: **LCS-74525**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **74525**	RunNo: **96286**
Prep Date: **4/24/2023**	Analysis Date: **4/24/2023**	SeqNo: **3486803** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.4	90	110			

Sample ID: **MB-74538**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **74538**	RunNo: **96292**
Prep Date: **4/25/2023**	Analysis Date: **4/25/2023**	SeqNo: **3487860** Units: **mg/Kg**

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

Sample ID: **LCS-74538**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **74538**	RunNo: **96292**
Prep Date: **4/25/2023**	Analysis Date: **4/25/2023**	SeqNo: **3487861** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.5	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#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **LCS-74508** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **74508** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3485596** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		85.6	69	147			

Sample ID: **MB-74508** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **74508** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/24/2023** SeqNo: **3485597** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		86.2	69	147			

Sample ID: **2304959-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-09 0'** Batch ID: **74519** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/25/2023** SeqNo: **3486534** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.8	49.21	0	84.9	54.2	135			
Surr: DNOP	4.7		4.921		95.9	69	147			

Sample ID: **2304959-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-09 0'** Batch ID: **74519** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/25/2023** SeqNo: **3486535** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	49.85	0	86.0	54.2	135	2.59	29.2	
Surr: DNOP	4.7		4.985		93.8	69	147	0	0	

Sample ID: **LCS-74519** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **74519** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/25/2023** SeqNo: **3486557** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.5	61.9	130			
Surr: DNOP	4.3		5.000		86.2	69	147			

Sample ID: **MB-74519** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **74519** RunNo: **96255**
Prep Date: **4/24/2023** Analysis Date: **4/25/2023** SeqNo: **3486561** 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#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **MB-74519**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **74519**	RunNo: **96255**
Prep Date: **4/24/2023**	Analysis Date: **4/25/2023**	SeqNo: **3486561** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.2	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#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **GS96281**	RunNo: **96281**
Prep Date:	Analysis Date: **4/25/2023**	SeqNo: **3486749** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2200		1000		220	37.7	212			S

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **GS96281**	RunNo: **96281**
Prep Date:	Analysis Date: **4/25/2023**	SeqNo: **3486752** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		102	37.7	212			

Sample ID: **lcs-74514**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **74514**	RunNo: **96281**
Prep Date: **4/24/2023**	Analysis Date: **4/25/2023**	SeqNo: **3487017** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.4	70	130			
Surr: BFB	1900		1000		190	37.7	212			

Sample ID: **2304959-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-09 0'**	Batch ID: **74514**	RunNo: **96281**
Prep Date: **4/24/2023**	Analysis Date: **4/25/2023**	SeqNo: **3488377** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.8	23.99	0	89.0	70	130			
Surr: BFB	1900		959.7		201	37.7	212			

Sample ID: **2304959-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-09 0'**	Batch ID: **74514**	RunNo: **96281**
Prep Date: **4/24/2023**	Analysis Date: **4/25/2023**	SeqNo: **3488378** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.8	23.92	0	92.0	70	130	2.98	20	
Surr: BFB	1900		956.9		203	37.7	212	0	0	

Sample ID: **mb-74514**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **74514**	RunNo: **96281**
Prep Date: **4/24/2023**	Analysis Date: **4/25/2023**	SeqNo: **3489211** 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		88.9	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#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **lcs-74558**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **74558**	RunNo: **96347**
Prep Date: **4/25/2023**	Analysis Date: **4/27/2023**	SeqNo: **3489509** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		187	37.7	212			

Sample ID: **mb-74558**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **74558**	RunNo: **96347**
Prep Date: **4/25/2023**	Analysis Date: **4/27/2023**	SeqNo: **3489510** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	920		1000		92.1	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#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **100ng btex lcs**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **BS96281**	RunNo: **96281**
Prep Date:	Analysis Date: **4/25/2023**	SeqNo: **3486750** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		97.6	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **BS96281**	RunNo: **96281**
Prep Date:	Analysis Date: **4/25/2023**	SeqNo: **3486753** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.97		1.000		96.9	70	130			

Sample ID: **lcs-74556**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **74556**	RunNo: **96347**
Prep Date: **4/25/2023**	Analysis Date: **4/26/2023**	SeqNo: **3489547** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	1.000	0	86.0	80	120			
Toluene	0.85	0.050	1.000	0	85.2	80	120			
Ethylbenzene	0.83	0.050	1.000	0	83.1	80	120			
Xylenes, Total	2.5	0.10	3.000	0	82.3	80	120			
Surr: 4-Bromofluorobenzene	0.87		1.000		87.0	70	130			

Sample ID: **mb-74556**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **74556**	RunNo: **96347**
Prep Date: **4/25/2023**	Analysis Date: **4/26/2023**	SeqNo: **3489548** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.88		1.000		87.6	70	130			

Sample ID: **2304959-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-09 2'**	Batch ID: **74556**	RunNo: **96347**
Prep Date: **4/25/2023**	Analysis Date: **4/26/2023**	SeqNo: **3489553** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9718	0	94.7	68.8	120			
Toluene	0.94	0.049	0.9718	0	96.6	73.6	124			
Ethylbenzene	0.93	0.049	0.9718	0	96.2	72.7	129			
Xylenes, Total	2.8	0.097	2.915	0	95.4	75.7	126			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	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#: **2304959**

28-Apr-23

Client: Vertex Resources Services, Inc.

Project: Todd 27 Federal 016

Sample ID: **2304959-002ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-09 2'** Batch ID: **74556** RunNo: **96347**

Prep Date: **4/25/2023** Analysis Date: **4/26/2023** SeqNo: **3489553** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.84		0.9718		86.3	70	130			

Sample ID: **2304959-002amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-09 2'** Batch ID: **74556** RunNo: **96347**

Prep Date: **4/25/2023** Analysis Date: **4/26/2023** SeqNo: **3489554** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9728	0	90.5	68.8	120	4.51	20	
Toluene	0.88	0.049	0.9728	0	90.5	73.6	124	6.34	20	
Ethylbenzene	0.87	0.049	0.9728	0	89.1	72.7	129	7.50	20	
Xylenes, Total	2.6	0.097	2.918	0	88.0	75.7	126	8.05	20	
Surr: 4-Bromofluorobenzene	0.86		0.9728		87.9	70	130	0	0	

Sample ID: **lcs-74558** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **74558** RunNo: **96347**

Prep Date: **4/25/2023** Analysis Date: **4/27/2023** SeqNo: **3489574** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.6	70	130			

Sample ID: **mb-74558** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **74558** RunNo: **96347**

Prep Date: **4/25/2023** Analysis Date: **4/27/2023** SeqNo: **3489575** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.88		1.000		88.3	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: 2304959

RcptNo: 1

Received By: Juan Rojas 4/22/2023 7:30:00 AM

Completed By: Juan Rojas 4/22/2023 7:48:51 AM

Reviewed By: 4/24/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
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: JR 4/22/23

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:

Client missing mailing address,phone number, and email address on COC. JR 4/22/23

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	No	Morty		

Chain-of-Custody Record

Client: Vertex

(direct bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush 48-hr

Project Name: Todd 27 P Federal #016

Project #: 22E-02816-19

Project Manager: Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman

On Ice: ☒ Yes ☐ No

# of Coolers: 1 Marty

Cooler Temp(including CF): 0.4-0.1=0.3

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. 2304459	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)
04/20/23	10:10	Soil	BH23-09 0'	1, 4oz jar		-001	X	X					X			
04/20/23	10:15	Soil	BH23-09 2'	1, 4oz jar		-002	X	X					X			
04/20/23	10:20	Soil	BH23-09 4'	1, 4oz jar		-003	X	X					X			
04/20/23	10:25	Soil	BH23-10 0'	1, 4oz jar		-004	X	X					X			
04/20/23	10:30	Soil	BH23-10 2'	1, 4oz jar		-005	X	X					X			
04/20/23	10:35	Soil	BH23-10 4'	1, 4oz jar		-006	X	X					X			
04/20/23	10:45	Soil	BH23-11 0'	1, 4oz jar		-007	X	X					X			
04/20/23	10:50	Soil	BH23-11 2'	1, 4oz jar		-008	X	X					X			
04/20/23	10:55	Soil	BH23-11 4'	1, 4oz jar		-009	X	X					X			
04/20/23	11:05	Soil	BH23-12 0'	1, 4oz jar		-010	X	X					X			
04/20/23	11:10	Soil	BH23-12 2'	1, 4oz jar		-011	X	X					X			
04/20/23	11:15	Soil	BH23-12 4'	1, 4oz jar		-012	X	X					X			

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4-21-23	07:00				4/21/23	0700
4/21/23	1900			courier	4/22/23	7:30

Remarks:

Direct bill to Devon, Dale Woodall

cc. kstallings@vertex.ca for Final Report

1/2

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

Chain-of-Custody Record

Client: Vertex

(direct bill to Devon)

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 48 hr

Project Name:

Todd 27 P Federal #016

Project #:

22E-02816-19

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman

On Ice: ☑ Yes ☐ No

\# of Coolers: 1 Morty

Cooler Temp(including CF): 0.4-0.1=0.3

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. 2304959	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)
04/20/23	11:20	Soil	BH23-13 0'	1, 4oz jar		-013	X	X					X			
04/20/23	11:25	Soil	BH23-13 2'	1, 4oz jar		-014	X	X					X			
04/20/23	11:30	Soil	BH23-13 4'	1, 4oz jar		-015	X	X					X			
04/20/23	11:35	Soil	BH23-14 0'	1, 4oz jar		-016	X	X					X			
04/20/23	11:40	Soil	BH23-14 2'	1, 4oz jar		-017	X	X					X			
04/20/23	11:45	Soil	BH23-15 0'	1, 4oz jar		-018	X	X					X			
04/20/23	11:50	Soil	BH23-15 2'	1, 4oz jar		-019	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
4-21-23	0700	[signature]	[signature]		4/21/23	0700
4/21/23	1910	[signature]	[signature]	courier	4/22/23	7:30

Remarks:
Direct bill to Devon, Dale Woodall
cc. kstallings@vertex.ca for Final Report

2/2

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

ATTACHMENT 4

Daily Site Visit Report

Client	Devon Energy Corporation	Inspection Date	4/20/2023
Site Location Name	Todd 27 P Fed #16 SWD	API #	30-015-27106
Client Contact Name	Dale Woodall	Project Owner	
Client Contact Phone #	405-318-4697	Project Manager	
Project Reference #			
Unique Project ID			

Summary of Times

Arrived at Site	4/20/2023 9:18 AM
Departed Site	4/20/2023 5:38 PM

Field Notes

9:27 Completed JSA on arrival. On site to continue delineation of release south of lease road.

16:44 Mapped additional borehole locations in Arc Collector.

16:44 Swept borehole areas with magnetic locator prior to ground disturbance.

16:46 Advanced BH23-09, BH23-10, BH23-11, BH23-12, and BH23-13 to 4 feet bgs. Collected samples at 0, 2, and 4 feet bgs.

16:47 Advanced BH23-14 and BH23-15 to 2 feet bgs. Collected samples at 0 and 2 feet bgs.

16:48 Field screening results for all samples were below NMOCD strictest criteria for TPH and chloride.

16:52 Horizontal delineation tentatively complete pending laboratory results. Vertical delineation inhibited by refusal at 5 feet bgs. Local and relatively current depth to groundwater well available. Groundwater reference depth greater than 100 feet bgs. Vertical delineation not required due to depth to groundwater reference.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South

North of tank battery facing south.

Viewing Direction: South

On lease road facing south. Advanced BH23-09 north of BH23-07.

Viewing Direction: Southwest

South edge of lease road facing southwest. Advanced BH23-10 north-northeast of BH23-08.

Viewing Direction: Northwest

South of lease road facing northwest. Advanced BH23-11 east-southeast of BH23-08.

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: North
	
South of lease road facing northeast. Advanced BH23-12 south-southwest of BH22-08.	South of lease road facing north. Advanced BH23-13 south-southwest of BH22-01.
Viewing Direction: West	**Viewing Direction**: East
	
South of lease road facing west. Advanced BH23-14 south-southwest of BH22-02.	South of lease road facing east. Advanced BH23-15 south-southwest of BH22-03.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Lakin Pullman

Signature:

ATTACHMENT 5

Closure Criteria Determination				
Site Name: Todd 27 P Federal #016				
Spill Coordinates: 32.268665,-103.758618		X: 616916	Y: 3570892	
Site Specific Conditions		Value	Unit	Reference
1	Depth to Groundwater (nearest reference)	**430**	feet	1
	Distance between release and nearest DTGW reference	**2,467**	feet	
		0.47	miles	
	Date of nearest DTGW reference measurement	**November 1, 2013**		
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	16,438	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	22,578	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	26,928	feet	4
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	2,467	feet	5
	ii) Within 1000 feet of any fresh water well or spring	2,467	feet	5
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)	6
7	Within 300 feet of a wetland	18,940	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
	Distance between release and nearest registered mine	47,843	feet	
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low	9
	Distance between release and nearest Medium Karst	24,605	feet	
10	Within a 100-year Floodplain	>500	year	10
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	25,980	feet	
11	Soil Type	Fine sand, sandy clay loam		11
12	Ecological Classification	Loamy sand		12
13	Geology	Eolian and piedmont deposits		13
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	>100'	<50' 51-100' >100'	

OSE POD 0.5 miles

3/22/2025, 12:49:27 PM

GIS WATERS PODs

- Active
- Pending
- OSE District Boundary

Water Right Regulations

- 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

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

Online web user

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

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD has been replaced, O=orphaned, C=the file is closed)			(quarters are smallest to largest)						(NAD83 UTM in meters)				(In feet)	(In feet)	(In feet)
POD Number	**Code**	**Sub basin**	**County**	**Q64**	**Q16**	**Q4**	**Sec**	**Tws**	**Range**	**X**	**Y**	**Map**	**Distance**	**Well Depth**	**Depth Water**	**Water Column**
C 02348		C	ED	NW	SE	SW	26	23S	31E	617647.5	3571068.0		752	700	430	270
C 02258		C	ED		SW	NE	26	23S	31E	618055.0	3571853.0 *		1490	662		
														Average Depth to Water: **430 fee**		
														Minimum Depth: **430 feet**		
														Maximum Depth: **430 feet**		

Record Count: 2

UTM Filters (in meters):
Easting: 616916
Northing: 3570892
Radius: 002000

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

Point of Diversion Summary

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

NAD83 UTM in meters

Well Tag	POD Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
	C 02348	NW	SE	SW	26	23S	31E	617647.5	3571068.0	

* UTM location was derived from PLSS - see Help

Driller License:	1654	**Driller Company:**	NOT WORKING FOR HIRE--SIRMAN DRILLING AND CONSTRUC		
Driller Name:	JOHN SIRMAN				
Drill Start Date:	2013-10-31	**Drill Finish Date:**	2013-11-01	**Plug Date:**	
Log File Date:	2013-11-07	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	10
Casing Size:	6.00	**Depth Well:**	700	**Depth Water:**	430

Water Bearing Stratifications:

Top	Bottom	Description
15	125	Sandstone/Gravel/Conglomerate
315	700	Sandstone/Gravel/Conglomerate

Casing Perforations:

Top	Bottom
560	620
680	700

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE
ROSWELL NEW MEXICO

2013 NOV -7 A 11:11

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER): C-2348	OSE FILE NUMBER(S): C-2348
WELL OWNER NAME(S): MARK McCloy - McCloy Ranches	PHONE (OPTIONAL): 432-940-4459
WELL OWNER MAILING ADDRESS: P.O. Box 1076 254 Diamond Rd	CITY: Jal STATE: NM ZIP: 88252

WELL LOCATION (FROM GPS): DEGREES / MINUTES / SECONDS

LATITUDE 32 16 12.91 N

LONGITUDE 103 45 03.61 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

Hwy 128 to 18 mm 1 mile N 1 mile west on Red Road

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1654	John Sirman	Sirman Drilling & Const. LLC

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
10/31/13	11/1/13	700'-0	700'-0	575 ~~600~~

STATIC WATER LEVEL IN COMPLETED WELL (FT): 430'-0

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

DRILLING FLUID: ☑ AIR ☐ MUD ☐ ADDITIVES – SPECIFY:

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

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	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	560	10	PVC	Certa-Lok	6	DR-17	Blank
560	620	10	PVC	Certa Lok	6	DR-17	.032 Screen
620	680	10	PVC	Certa lok	6	DR17	Blank
680	700	10	PVC	Certa lok	6	DR-17	.032 screen

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
0	20	10	3/8 bentonite hole plug	6 bags	gravity
67	700	10	3/8 pea gravel	5 yds	gravity

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	POD NUMBER	TRN NUMBER
C-2348	1	491413

LOCATION: C 23S.31E.26.3.4.1 LIVESTOCK

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	10	10	Brown sand	☐ Y ☒ N	
10	15	5	white caliche	☐ Y ☒ N	
15	125	110	Brown sandstone	☒ Y ☐ N	
125	315	190	Red shale	☐ Y ☒ N	
315	700	385	Red sandstone	☒ Y ☐ N	10
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
				☐ Y ☐ N	
	700			☐ 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): 10

STATE ENGINEER OFFICE ROSWELL NEW MEXICO 2013 NOV 7 AM 11 11

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:

none

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

none

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 20 DAYS AFTER COMPLETION OF WELL DRILLING:

John Sirman (signature) John Sirman — 11/3/13

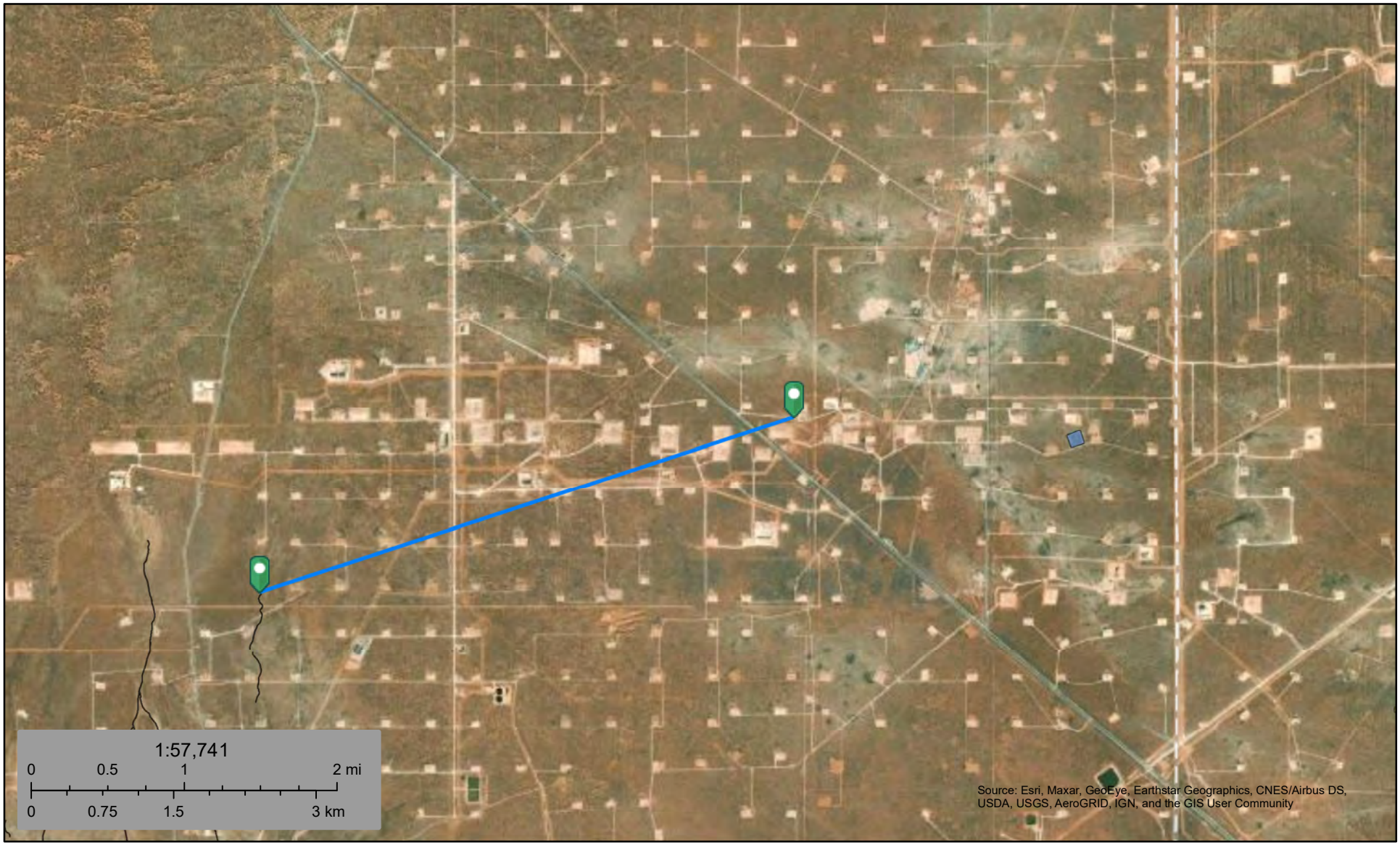
SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	C-2348	POD NUMBER	1	TRN NUMBER	491413
LOCATION	C 23S.31E.20.3.4.1 Livestock			PAGE 2 OF 2	

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 27P Fed 016, Intermittent 16438ft



July 20, 2021

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

Pond 22,578 feet

March 22, 2025

Wetlands

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

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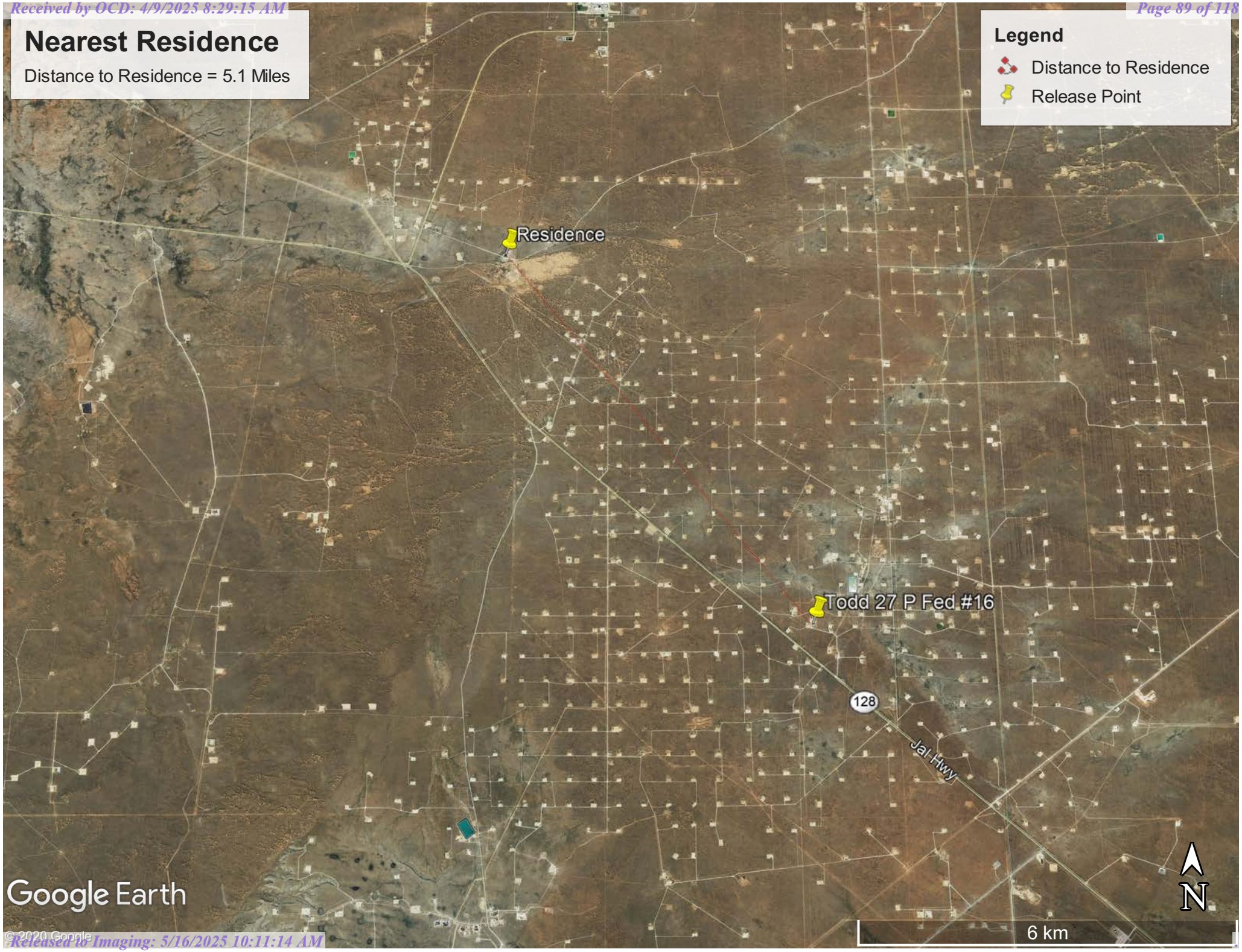
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Nearest Residence

Distance to Residence = 5.1 Miles



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)			(meters)
WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q64	q16	q4	Sec	Tws	Range	X	Y	Map	Distance
C 02348	C	STK	3.000	NGL NORTH RANCH LLC A TEXAS LIMITED LIABILITY CO	ED	C 02348				Shallow	NW	SE	SW	26	23S	31E	617647.5	3571068.0		752.4
C 02258	C	PRO	0.000	DEVON ENERGY CORP. (NEVADA)	ED	C 02258						SW	NE	26	23S	31E	618055.0	3571853.0 *		1,490.2
C 02602	C	SAN	0.000	POGO PRODUCING COMPANY	ED	C 02602						NE	NE	35	23S	31E	618471.0	3570650.0 *		1,573.7

Record Count: 3

Filters Applied:

UTM Filters (in meters):
Easting: 616916
Northing: 3570892
Radius: 002000

Sorted By: Distance

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

Water Right Summary

get image list

WR File Number:	C 02348	**Subbasin:**	C	**Cross Reference:**
Primary Purpose:	STK 72-12-1 LIVESTOCK WATERING			
Primary Status:	PMT Permit			
Total Acres:		**Subfile:**		**Header:**
Total Diversion:	3.000	**Cause/Case:**		
Owner:	NGL NORTH RANCH LLC A TEXAS LIMITED LIABILITY CO	**Owner Class:**	Agent	
Contact:	JIM WINTER			

Documents on File

(acre-feet per annum)

Transaction Images	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/To	Acres	Diversion	Consumptive
	755955	COWNF	2024-01-31	CHG	PRC	C 02348	T	0.000	0.000	
get images	633178	COWNF	2018-09-17	CHG	PRC	C 02348	T		0.000	
get images	491413	72121	2011-12-14	PMT	LOG	C 02348: SUBSEQUENT STK PERMIT	T		3.000	
	422940	COWNF	2009-02-02	CHG	PRC	C 02348	T		0.000	
	154822	COWNF	1998-09-09	CHG	PRC	C 02348	T	0.000	0.000	
	154817	DCL	1998-09-09	DCL	PRC	C 02348	T	0.000	3.000	

Current Points of Diversion

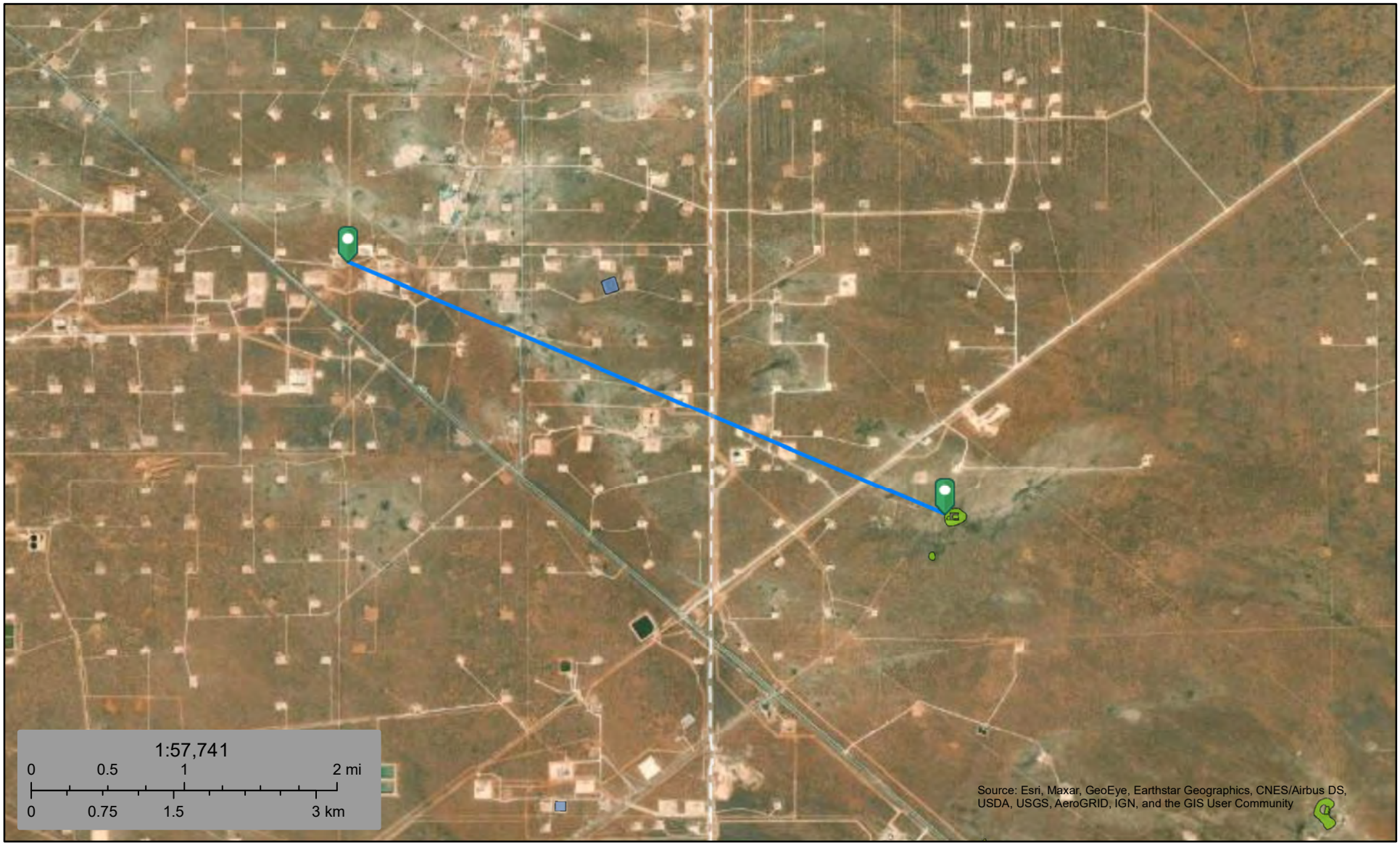
POD Number	Well Tag	Source	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map	Other Location Desc
C 02348		Shallow	NW	SE	SW	26	23S	31E	617647.5	3571068.0		

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

U.S. Fish and Wildlife Service

National Wetlands Inventory

Todd 27P Fed 016, Wetland 18940ft



July 20, 2021

Wetlands

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

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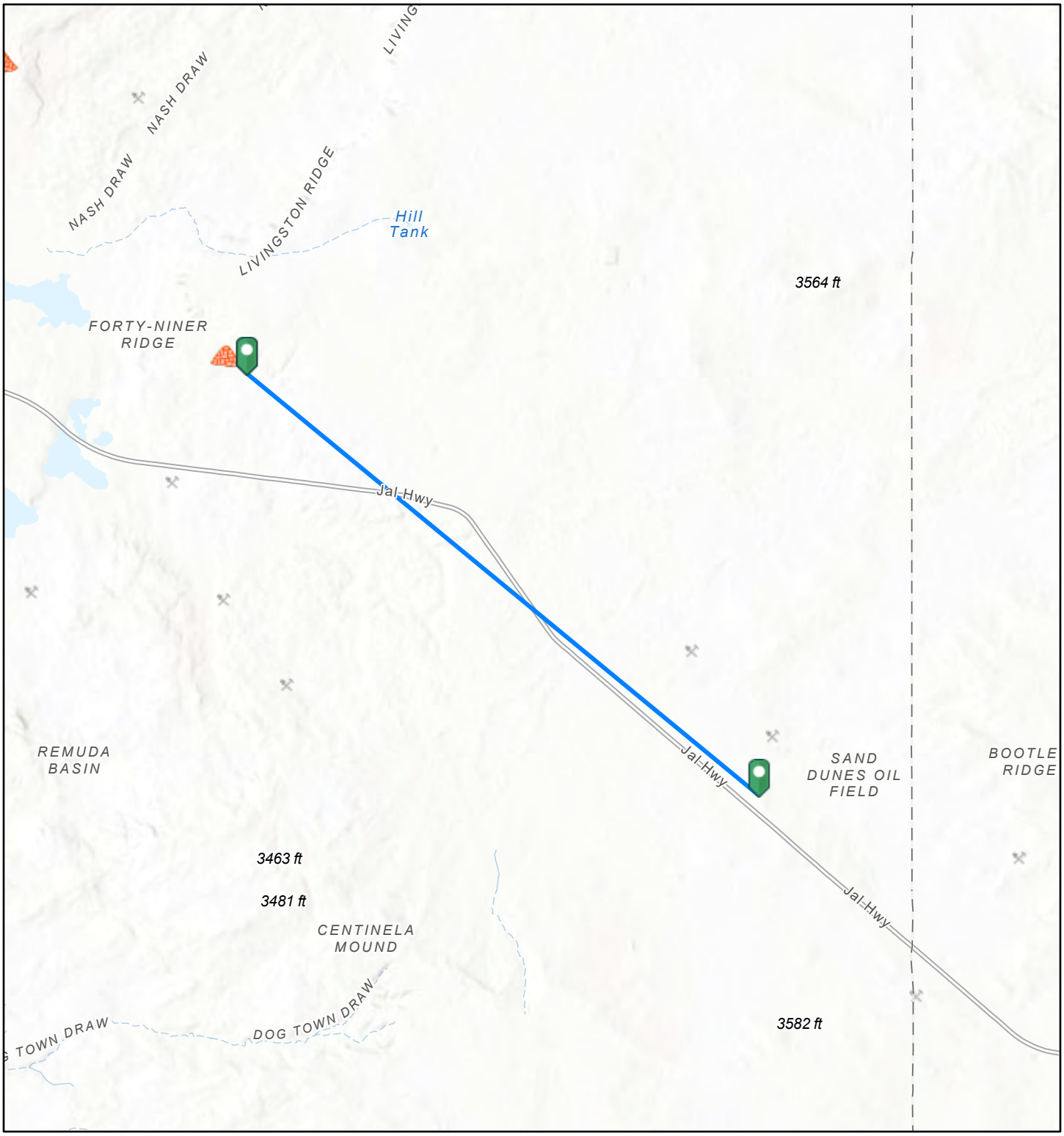
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Potash Mine 47,843 feet



3/22/2025, 1:29:01 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Registered Mines

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

Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

EMNRD MMD GIS Coordinator

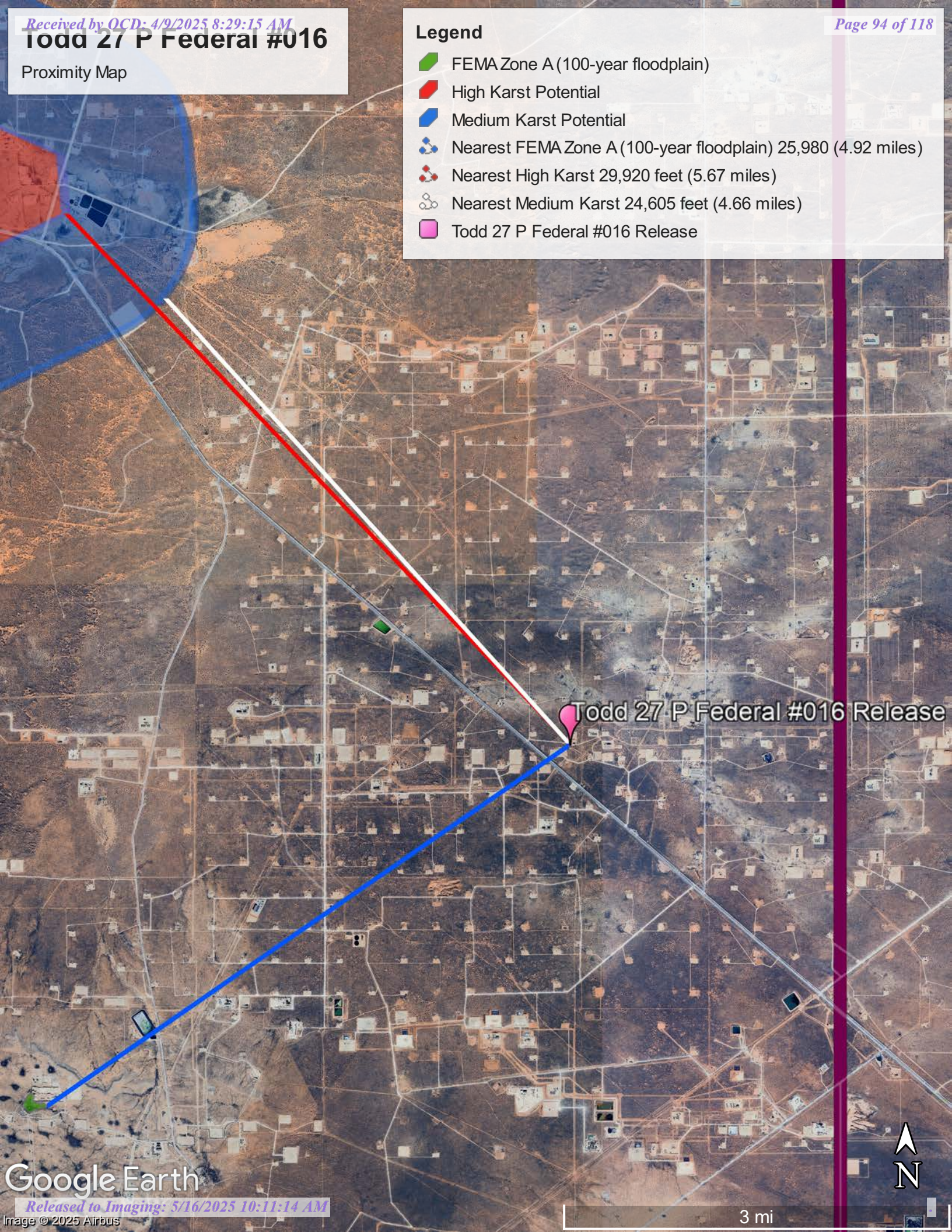
New Mexico Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)

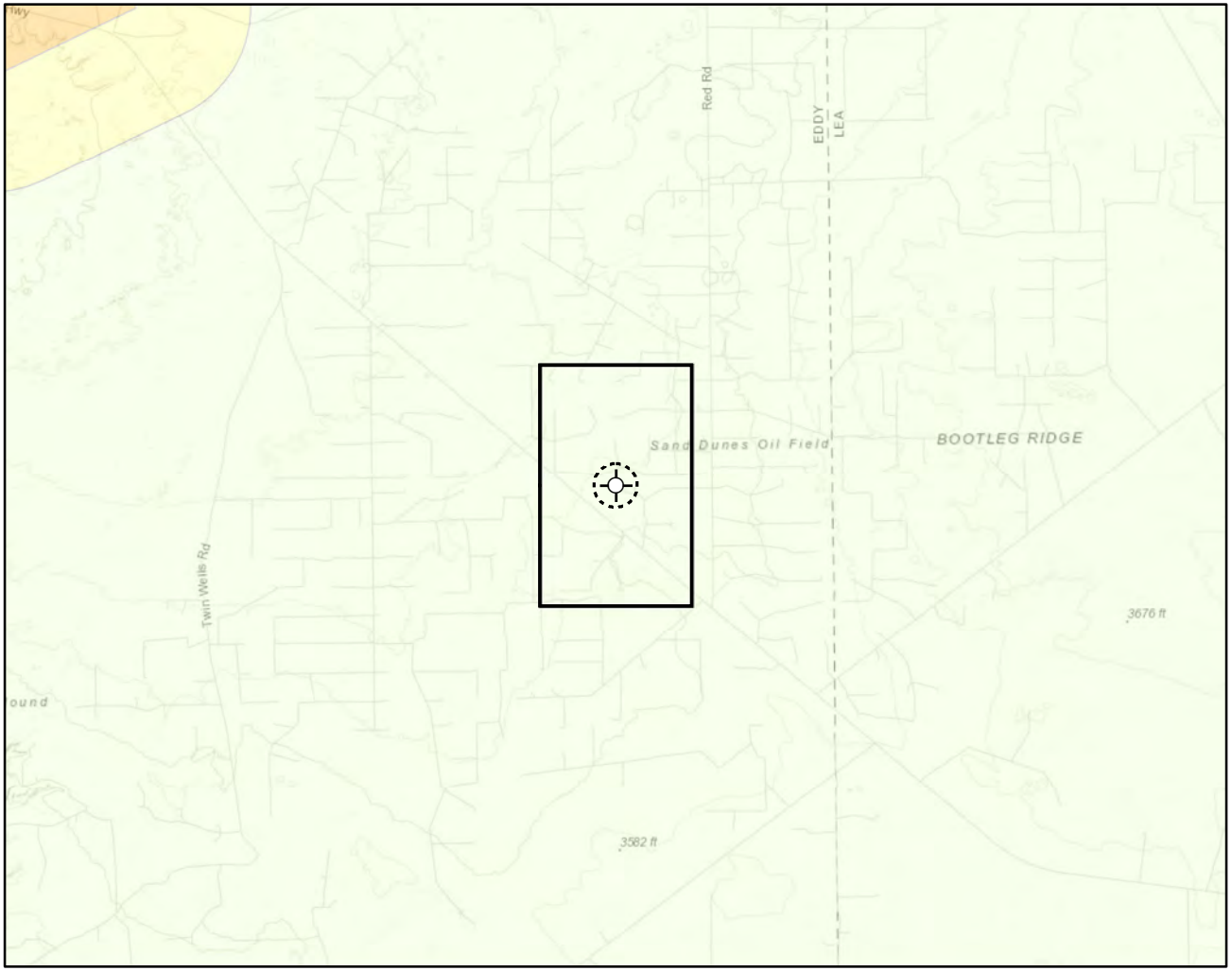
Todd 27 P Federal #016

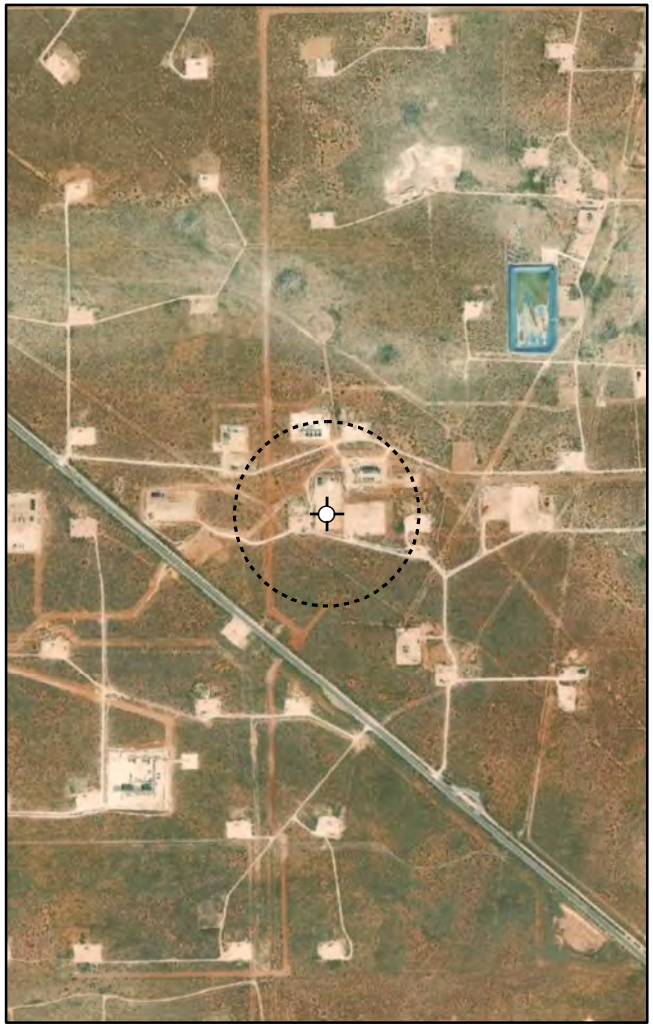
Proximity Map

Legend

- FEMA Zone A (100-year floodplain)
- High Karst Potential
- Medium Karst Potential
- Nearest FEMA Zone A (100-year floodplain) 25,980 (4.92 miles)
- Nearest High Karst 29,920 feet (5.67 miles)
- Nearest Medium Karst 24,605 feet (4.66 miles)
- Todd 27 P Federal #016 Release







Karst Potential

- Critical
- High
- Medium
- Low

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

Overview Map

0 0.25 0.5 1 1.5 mi

Detail Map

0 750 1,500 ft.

VERTEX

Map Center:
Lat/Long: 32.267474, -103.754981

NAD 1983 UTM Zone 13N
Date: Oct 05/20

N

Karst Potential
Todd 27P Fed #16

FIGURE:
X

devon

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

Note: Inset Map, ESRI 20XX; Overview Map: ESRI World Topographic

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\063 - Todd 27P Fed #16\Fig X Karst Potential 20E-00141 (Todd 27P Fed #16).mxd

National Flood Hazard Layer FIRMette

FEMA

103°45'37"W 32°16'18"N

103°44'59"W 32°15'48"N

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

1:6,000

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/5/2020 at 4:26 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

United States Department of Agriculture

NRCS

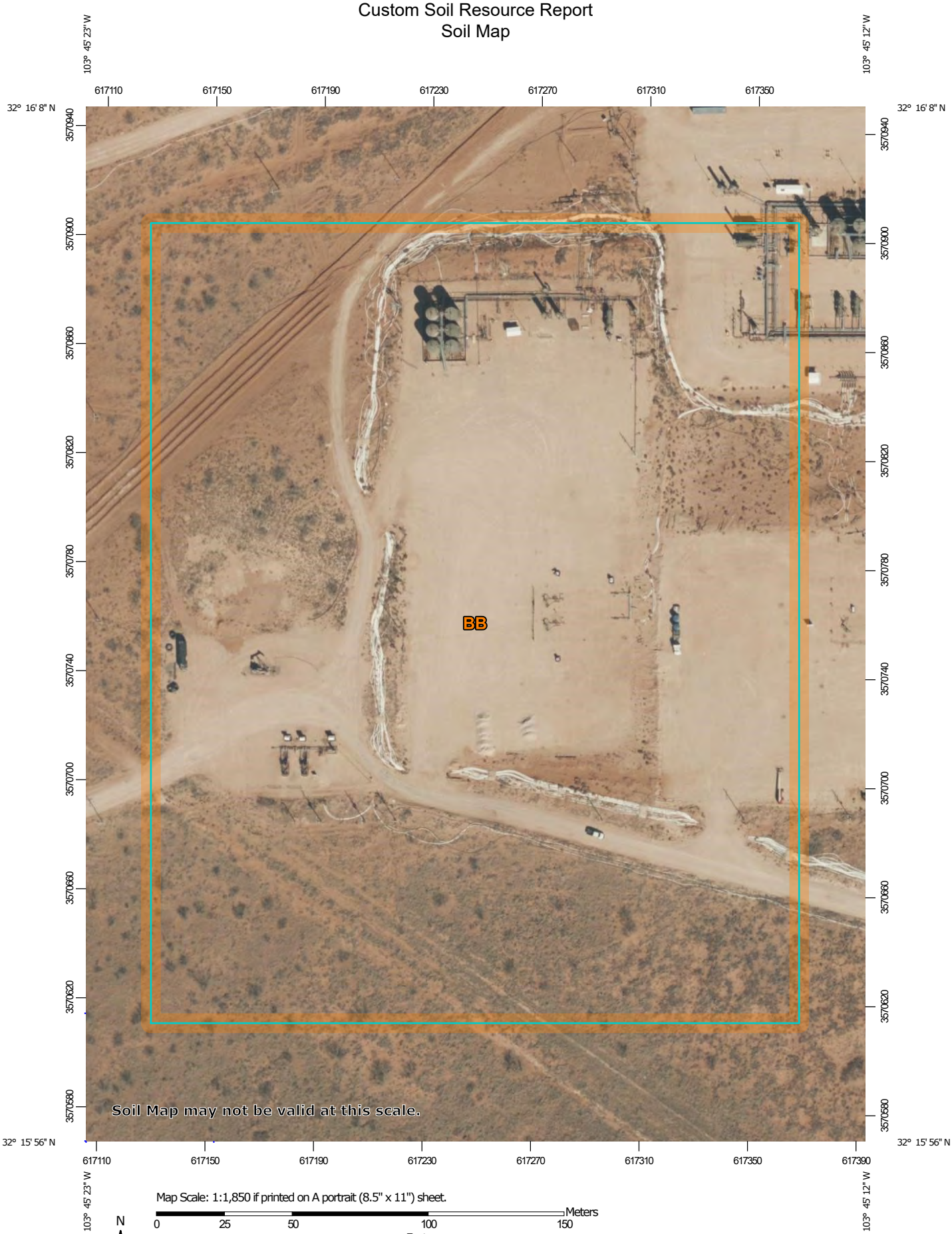
Natural Resources Conservation Service

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

Custom Soil Resource Report for Eddy Area, New Mexico

October 5, 2020

Custom Soil Resource Report
Soil Map



MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 16, Jun 8, 2020

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	17.4	100.0%
Totals for Area of Interest		**17.4**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Eddy Area, New Mexico

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

Map Unit Setting

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

Map Unit Composition

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

Description of Berino

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Description of Pajarito

Setting

Landform: Interdunes, plains, dunes
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 72 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Cacique

Percent of map unit: 4 percent
Ecological site: R042XC004NM - Sandy
Hydric soil rating: No

Pajarito

Percent of map unit: 4 percent
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Wink

Percent of map unit: 4 percent
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Kermit

Percent of map unit: 3 percent
Ecological site: R042XC005NM - Deep Sand
Hydric soil rating: No

USDA Natural Resources Conservation Service

Ecological site R042XC003NM
Loamy Sand

Accessed: 07/19/2021

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

R042XC004NM	**Sandy** Sandy
R042XC005NM	**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

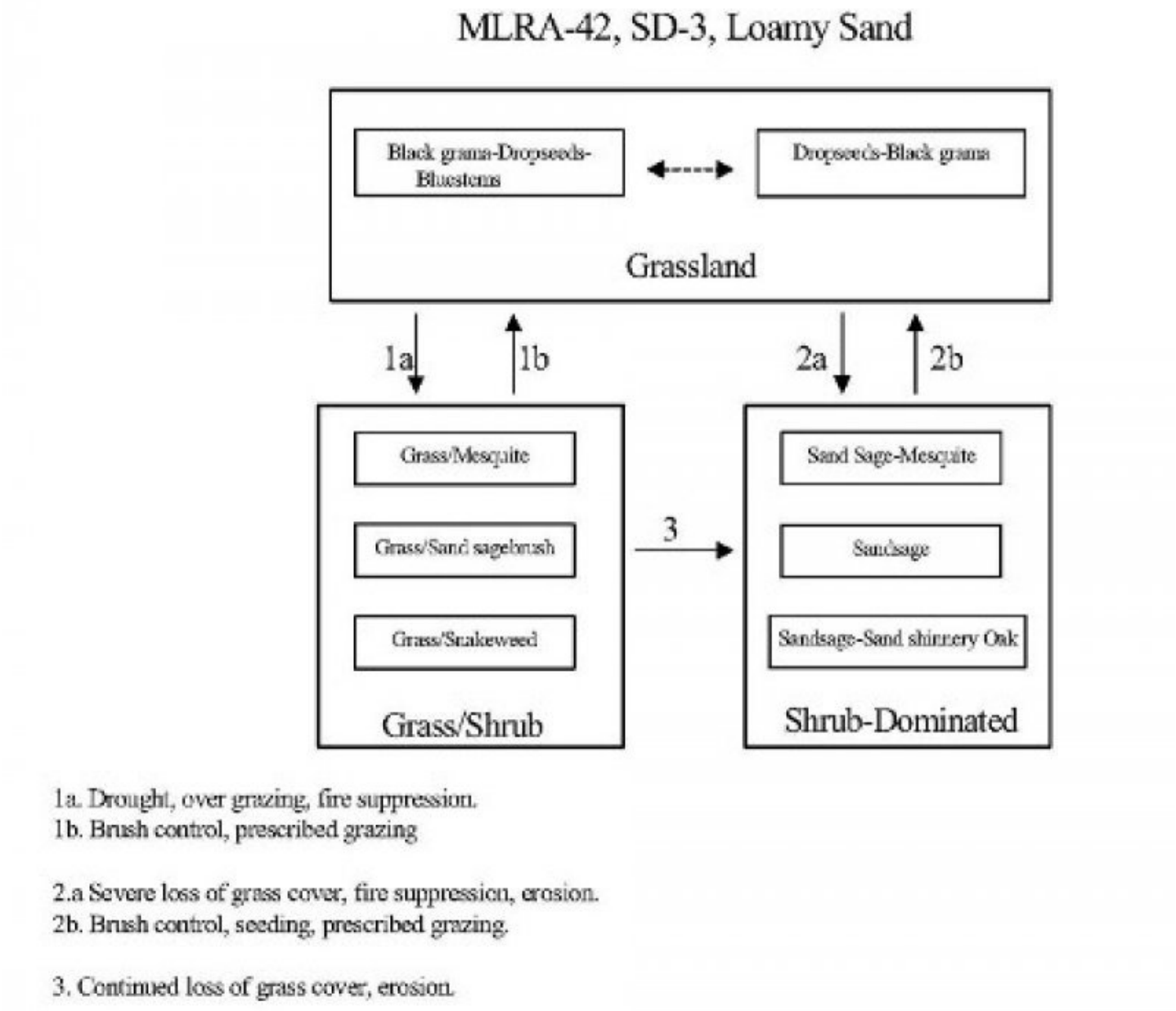
The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (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.

Figure 4.

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 6. 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.

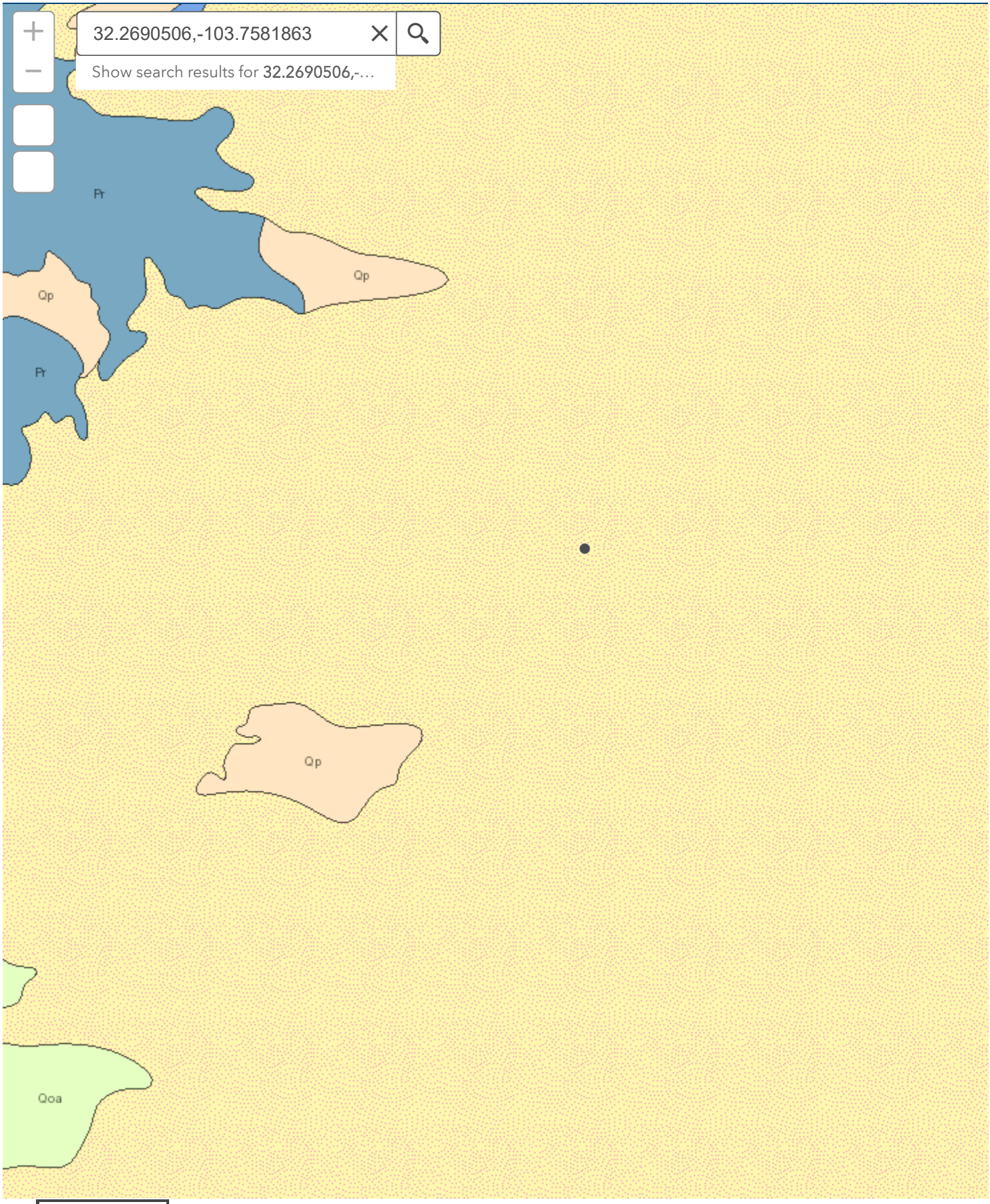
Key indicators of approach to transition:

• 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	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Sante Fe Main Office
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General Information
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Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Action 449918

QUESTIONS

Operator: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nMLB1122852054**
Incident Name	**NMLB1122852054 TODD 27 P FEDERAL #016 @ 30-015-27106**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Plan Received**
Incident Well	**[30-015-27106] TODD 27 P FEDERAL #016**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	Todd 27 P Federal #016
Date Release Discovered	07/25/2011
Surface Owner	Federal

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

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Equipment Failure | Flow Line - Injection | Produced Water | Released: 70 BBL | Recovered: 45 BBL | Lost: 25 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	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	False
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	Release occurred outside containment
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: Roni Kidd Title: Business Manager Email: rkidd@buckhornproduction.com Date: 04/08/2025

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QUESTIONS (continued)

Operator: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	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 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1000 (ft.) and ½ (mi.)
Any other fresh water well or spring	Between 1000 (ft.) and ½ (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	Between 1 and 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	Yes

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)	1600
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	152
GRO+DRO	(EPA SW-846 Method 8015M)	52
BTEX	(EPA SW-846 Method 8021B or 8260B)	0
Benzene	(EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.		
On what estimated date will the remediation commence		05/01/2025
On what date will (or did) the final sampling or liner inspection occur		08/01/2025
On what date will (or was) the remediation complete(d)		08/01/2025
What is the estimated surface area (in square feet) that will be reclaimed		418
What is the estimated volume (in cubic yards) that will be reclaimed		61
What is the estimated surface area (in square feet) that will be remediated		418
What is the estimated volume (in cubic yards) that will be remediated		61
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: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	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: Roni Kidd Title: Business Manager Email: rkidd@buckhornproduction.com Date: 04/08/2025
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

Operator: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	***{Unavailable.}***

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	No

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CONDITIONS

Operator: HARVARD PETROLEUM COMPANY, LLC P.O. Box 936 Roswell, NM 88202	OGRID: 10155
	Action Number: 449918
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	Remediation plan is approved as written except with the following condition; 1. Prior to backfilling the open excavation per 19.15.29.12D (2) NMAC, Harvard Petroleum (Harvard) must collect a minimum of one (1) 5pc from the media being used as backfill to verify that it meets non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, or other test methods approved by the division. 2. Harvard has 90-days to submit to OCD its appropriate or final remediation closure report.	5/16/2025