ATTACHMENT 5

Closure Criteria Determination				
Site Name: PLU 25 Brushy Draw West				
Spill Coordinates: 32.104434,-103.839389		X: 609505	Y: 3552601	
Site Specific Conditions		Value	Unit	Reference
1	Depth to Groundwater (nearest reference)	**109**	feet	1
	Distance between release and nearest DTGW reference	**1,458**	feet	
		0.27	miles	
	Date of nearest DTGW reference measurement	**February 24, 2021**		
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	331	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	3,612	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	69,853	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**	3,881	feet	5
	ii) Within 1000 feet of any fresh water well or spring	3,881	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	969	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
	Distance between release and nearest registered mine	**92,505**	feet	
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low	9
	Distance between release and nearest unstable area	**26,473**	feet	
10	Within a 100-year Floodplain	>500	year	10
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**2,656**	feet	
11	Soil Type	Gravelly fine sandy loam, indurated		11
12	Ecological Classification	Shallow Sandy		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 Location Map

3/1/2024, 2:08:53 PM

Override 1

GIS WATERS PODs

Active

Plugged

OSE District Boundary

Water Right Regulations

Artesian Planning Area

New Mexico State Trust Lands

Both Estates

NHD Flowlines

Artificial Path

Stream River

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

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

Online web user

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

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04498 POD1	CUB	ED	2	1	3	25	25S	30E	609394	3552168	446	109		
C 04624 POD1	CUB	ED	4	4	1	30	25S	31E	611501	3552305	2017	120	0	120
C 03781 POD1	CUB	ED	3	3	3	13	25S	30E	609306	3554761	2170	720	325	395
C 01379	C	ED	4	4	3	10	25S	30E	606571	3556355*	4764	400		

Average Depth to Water: **162 feet**

Minimum Depth: **0 feet**

Maximum Depth: **325 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 609504.76 **Northing (Y):** 3552601 **Radius:** 5000

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

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	C 04498 POD1	2	1	3	25	25S	30E	609394	3552168

Driller License: 1249 **Driller Company:** ATKINS ENGINEERING ASSOC. INC.

Driller Name: JAKCIE D ATKINS

Drill Start Date: 02/24/2021 **Drill Finish Date:** 02/24/2021 **Plug Date:** 03/02/2021

Log File Date: 03/11/2021 **PCW Rcv Date:** **Source:**

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 0 GPM

Casing Size: **Depth Well:** 109 feet **Depth Water:**

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD1 (BH-01)	n/a	C-4498

WELL OWNER NAME(S)	PHONE (OPTIONAL)
XTO Energy (Kyle Littrell)	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6401 Holiday Hill Dr.	Midland	TX	79707

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32°	6'	1.96"	N
	LONGITUDE	-103°	50'	26.19"	W

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

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

NW SW NE Sec. 25 T25S R30E

2. DRILLING & CASING INFORMATION

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

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
02/24/2021	02/24/2021	temporary well material	109	n/a

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

STATIC WATER LEVEL IN COMPLETED WELL (FT): n/a

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

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

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	109	±6.5	Boring- HSA	--	--	--	--
					OSE DIV MAR 11 2021 PM4:26		

3. ANNULAR MATERIAL

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

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO. C-4498	POD NO. 1	TRN NO. 682528	
LOCATION 132 T25S R30E Sec 25		WELL TAG ID NO. NA	PAGE 1 OF 2

4. HYDROGEOLOGIC ~~LOG~~ OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	34	34	Caliche, tan, no odor, no stain, gravel, dry	Y ✓ N	
34	40	6	sand/ cacliche, tan, no odor, no stain, m-f grain, well sorted, dry	Y ✓ N	
40	56	16	sand, tan, no odor, no stain, m-f grain, well sorted, dry	Y ✓ N	
56	72	16	sandstone, low consolidation, tan, no odor, no stain, m-f grain, well sorted, dry	Y ✓ N	
72	79	7	sand, tan, no odor, no stain, m-f grain, well sorted, dry	Y ✓ N	
79	109	30	sandstone, low - medium consolidation, tan, no odor, m-f grained, well sorted, m	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

~~METHOD~~ USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Temporary well materials removed and the soil boring backfilled using drill cuttings from total depth to ten feet below ground surface, then hydrated bentonite chips from ten feet below ground surface to surface. Logs adapted from WSP on-site geologist.

OSE DII MAR 11 2021 PM4:28

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

Shane Eldridge

6. SIGNATURE

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

Jack Atkins — Jackie D. Atkins — 03/11/2021

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO. C-4498	POD NO. 1	TRN NO. 682528	
LOCATION 132 T25S R30E Sec25		WELL TAG ID NO. NA	PAGE 2 OF 2

John R. D Antonio, Jr., P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 682528
File Nbr: C 04498
Well File Nbr: C 04498 POD1

Mar. 11, 2021

TACOMA MORRISEY
WSP USA
3300 NORTH A STREET
BLDG 1 #222
MIDLAND, TX 79705

Greetings:

The above numbered permit was issued in your name on 12/01/2020.

The Well Record was received in this office on 03/11/2021, stating that it had been completed on 02/24/2021, and was a dry well. The well is to be plugged according to 19.27.4.30 NMAC.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 12/01/2021.

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

Sincerely,

Andrew Dennis
(575)622-6521

drywell

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: C-4498- POD1

Well owner: XTO ENERGY (Kyle Littrell) Phone No.: 432.682.8873

Mailing address: 6401 Holiday Hill Dr.

City: Midland State: Texas Zip code: 79707

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Jackie D. Atkins (Atkins Engineering Associates Inc.)

2) New Mexico Well Driller License No.: 1249 Expiration Date: 04/30/21

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Shane Eldridge

4) Date well plugging began: 03/02/2021 Date well plugging concluded: 03/02/2021

5) GPS Well Location: Latitude: 32 deg, 6 min, 1.96 sec
Longitude: -103 deg, 50 min, 26.19 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 109 ft below ground level (bgl), by the following manner: weighted tape

7) Static water level measured at initiation of plugging: n/a ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 12/01/2020

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

OSE DIT MAR 11 2021 PM4:25

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	0-10' Hydrated Bentonite	Approx. 16 gallons	16 gallons	Augers	
	10'-109' Drill Cuttings	Approx. 171 gallons	171 gallons	Boring	

OSE DII MAR 11 2021 PM4:27

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

III. SIGNATURE:

I, Jackie D. Atkins , say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jack Atkins

Signature of Well Driller

03/11/2021

Date

Version: September 8, 2009
Page 2 of 2

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
ROSWELL

John R. D'Antonio , P.E.
State Engineer

DISTRICT II
1900 West Second St.
Roswell, NM 88201
Phone: (575) 622-6521
Fax: (575) 623-8559

April 12, 2021

XTO Energy
6401 Holiday Hill Dr.
Midland, TX 79707

RE: Well Plugging Record for OSE File No. C-4498 POD1

Greetings:

Please find enclosed Well Plugging Record, received and filed in our office on 03/11/21

Thank you,

Andrew Dennis
Engineering Technician

2020-03-10_C-4498-POD1_OSE_Well Record and Log-forsign

Final Audit Report 2021-03-11

Created:	2021-03-11
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAq2m7g1wGV8cRoBzMugpPTk25-4ojFW8H

"2020-03-10_C-4498-POD1_OSE_Well Record and Log-forsign" History

Document created by Lucas Middleton (lucas@atkinseng.com)
2021-03-11 - 7:17:39 PM GMT- IP address: 69.21.248.123

Document emailed to Jack Atkins (jack@atkinseng.com) for signature
2021-03-11 - 7:18:18 PM GMT

Email viewed by Jack Atkins (jack@atkinseng.com)
2021-03-11 - 7:29:33 PM GMT- IP address: 74.50.153.115

Document e-signed by Jack Atkins (jack@atkinseng.com)
Signature Date: 2021-03-11 - 7:31:05 PM GMT - Time Source: server- IP address: 74.50.153.115

Agreement completed.
2021-03-11 - 7:31:05 PM GMT

OSE DIT MAR 11 2021 PM4:27

Adobe Sign

U.S. Fish and Wildlife Service
National Wetlands Inventory

Intermittent 331 feet

June 12, 2024

Wetlands

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

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Pond 3,612 feet

June 12, 2024

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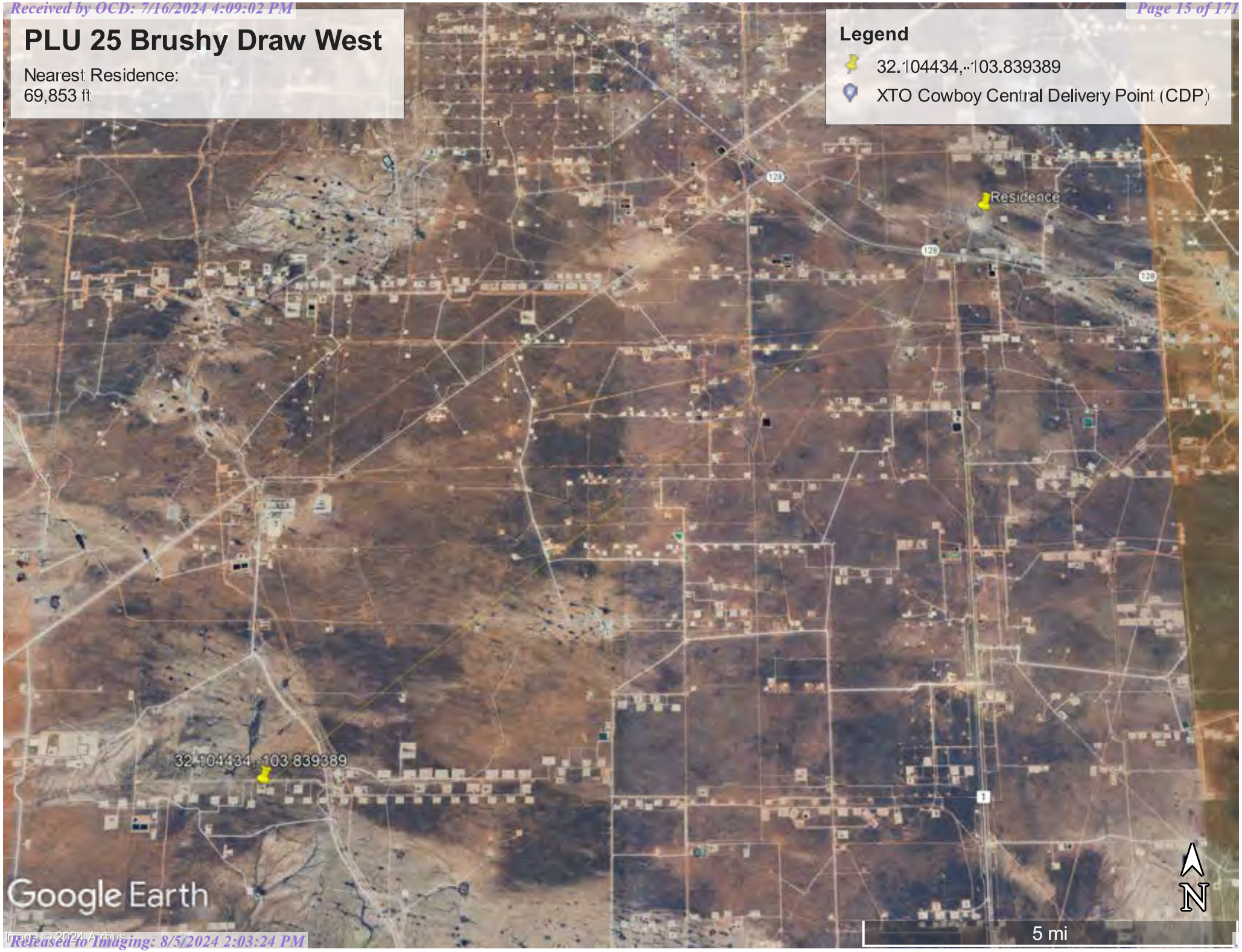
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q q q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 04498	CUB	MON	0	XTO ENERGY INC	ED	C 04498 POD1	NA				2 1 3	25	25S	30E	609394	3552168	446
LWD 01188	CUB	PLS	89.2	BUCK & LARUE JACKSON TRUST	ED	LWD 01188 POD1					1 1 3	24	25S	30E	609238	3553754*	1183
C 04624	CUB	MON	0	ENSOLUM LLC	ED	C 04624 POD1	NA				4 4 1	30	25S	31E	611500	3552305	2017
C 03781	CUB	EXP	0	ATKINS ENGR ASSOC INC	ED	C 03781 POD1				Artesian	3 3 3	13	25S	30E	609305	3554761	2170
LWD 01210	CUB	PLS	17	BUCK & LARUE JACKSON TRUST	ED	LWD 01210 POD1					3 2 3	36	25S	30E	609665	3550314*	2292
C 04730	CUB	MON	0	ENSOLUM	ED	C 04730 POD1	NA				3 3 1	27	25S	30E	606032	3552256	3489
C 02441	C	STK	0	BYRON W PASCHAL	ED	C 02441						21	25S	30E	605077	3553783*	4582
C 01379	C	STK	3	BUCK JACKSON	ED	C 01379					4 4 3	10	25S	30E	606571	3556355*	4764
C 01831	C	PRO	0	OXY PETROLEUM INC	ED	C 01831					2 1	17	25S	31E	612972	3556126*	4944

Record Count: 9

UTMNAD83 Radius Search (in meters):

Easting (X): 609504.76 **Northing (Y):** 3552601 **Radius:** 5000

Sorted by: Distance

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

New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	LWD 01188 POD1	1	1	3	24	25S	30E	609238	3553754*

Driller License: **Driller Company:**

Driller Name:

Drill Start Date: **Drill Finish Date:** **Plug Date:**

Log File Date: **PCW Rcv Date:** **Source:**

Pump Type: **Pipe Discharge Size:** **Estimated Yield:**

Casing Size: **Depth Well:** **Depth Water:**

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

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: LWD 01188 **Subbasin:** CUB **Cross Reference:** LWD-C-7

Primary Purpose: PLS NON 72-12-1 LIVESTOCK WATERING

Primary Status: DCL DECLARATION

Total Acres: 34.7 **Subfile:** - **Header:** -

Total Diversion: 89.2 **Cause/Case:** -

Owner: BUCK & LARUE JACKSON TRUST

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images 631014	DCL	1992-03-16	DCL	PRC	LWD-C-7	T	34.7	89.2	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
LWD 01188 POD1			1	1	3	24	25S	30E	609238	3553754*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

Priority Summary

Priority	Status	Acres	Diversion	Pod Number
12/31/1906	DCL	34.7	89.2	LWD 01188 POD1

Place of Use

Q 256	Q 64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
	1	1	3	24	25S	30E	34.7	89.2		PLS	12/31/1906	DCL	

Source

Acres	Diversion	CU	Use	Priority	Source	Description
34.7	89.2		PLS	12/31/1906	SW	

U.S. Fish and Wildlife Service
National Wetlands Inventory

PLU 25 BD West_Wetland_969 ft

March 1, 2024

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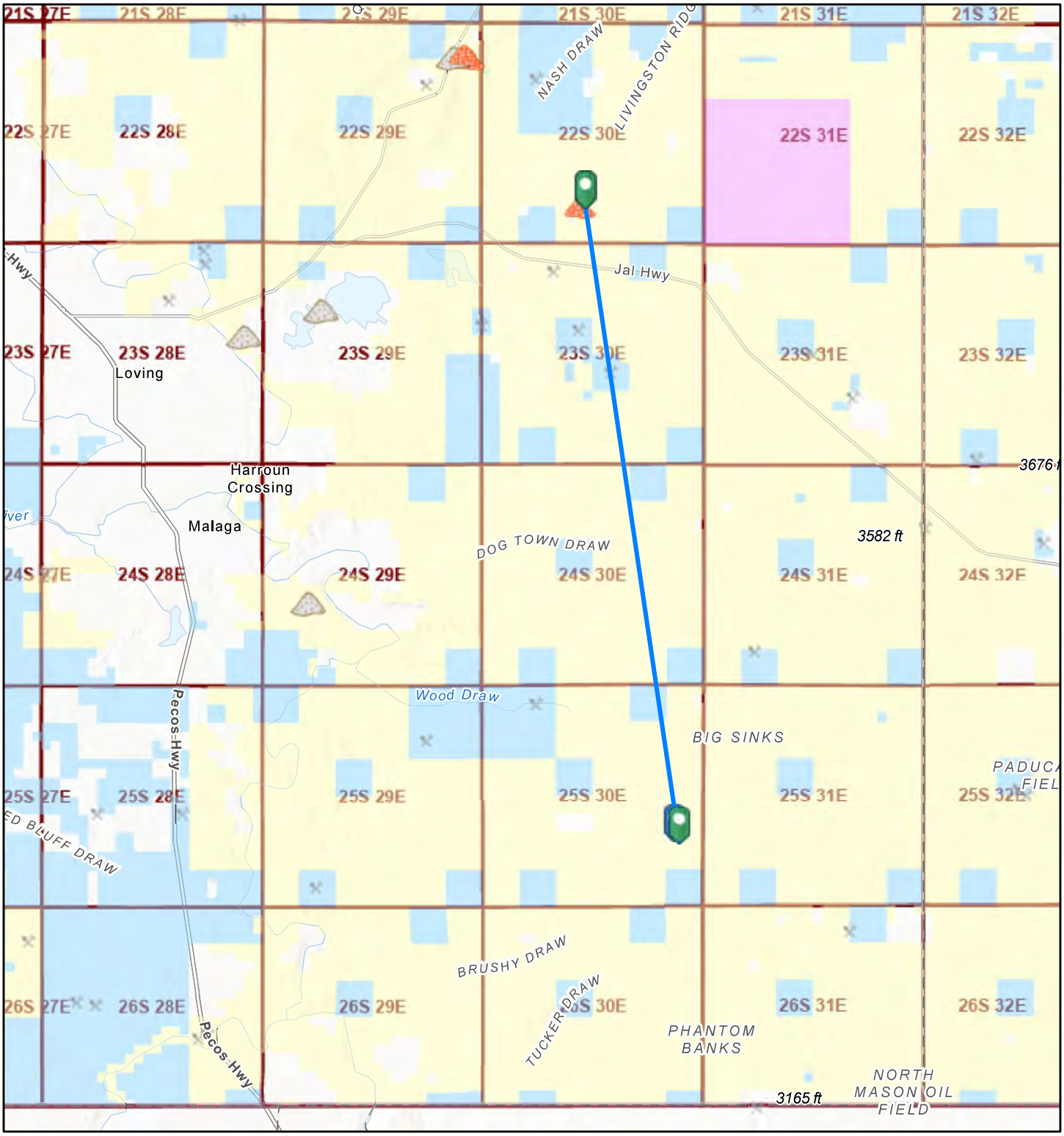
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Active Mines in New Mexico



3/1/2024, 2:56:59 PM

1:288,895

0 2 4 8 mi

0 3.25 6.5 13 km

Registered Mines

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

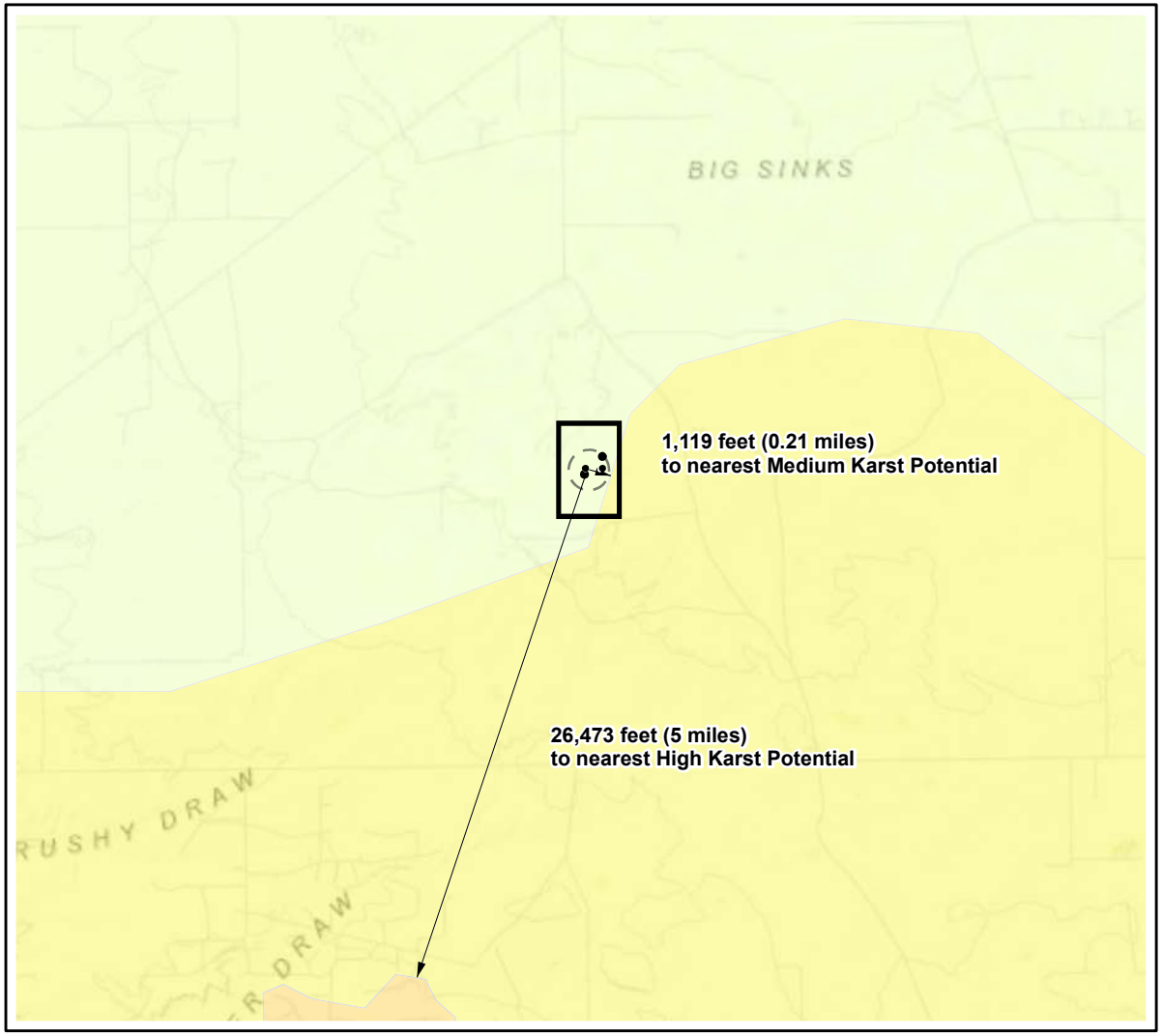
Land Ownership

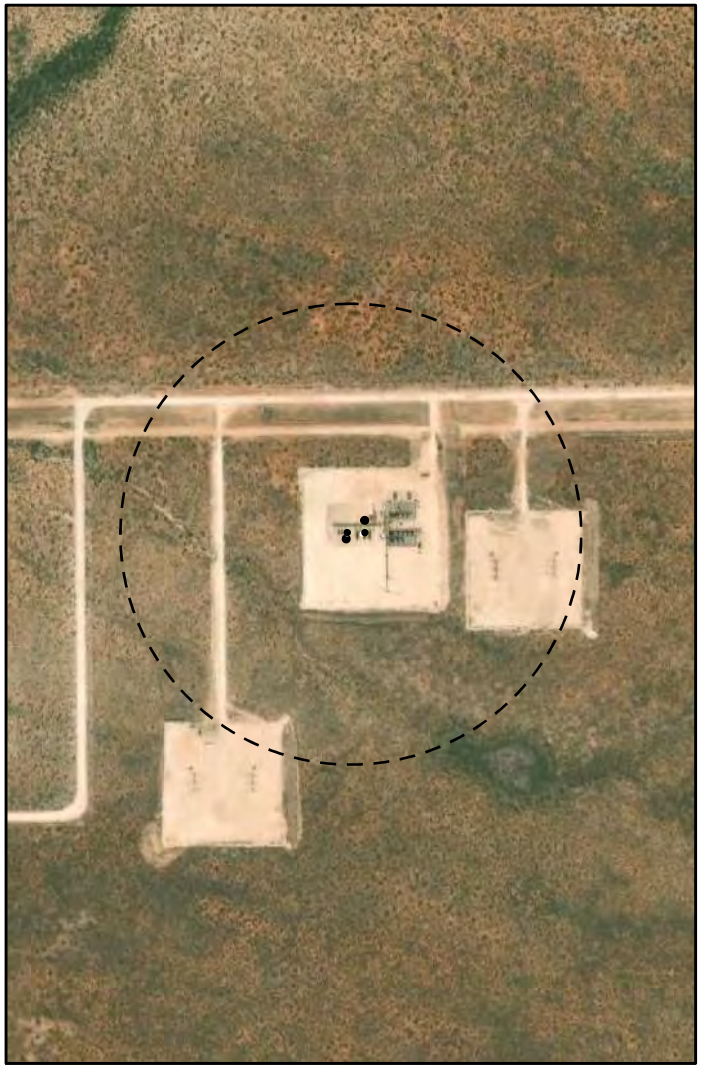
- BLM
- DOE
- P
- S
- PLSS Townships

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

EMNRD MMD GIS Coordinator

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





Overview Map

0 0.5 1 2 mi

Detail Map

0 150 300 600 ft

Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1000 ft.)

VERTEX

Map Center:
-103.840731° 32.097917°

NAD 1983 UTM Zone 13N
Date: Mar 05/24

Karst Potential Map
PLU 25 Brushy Draw West

Figure:
X

XTO ENERGY

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.

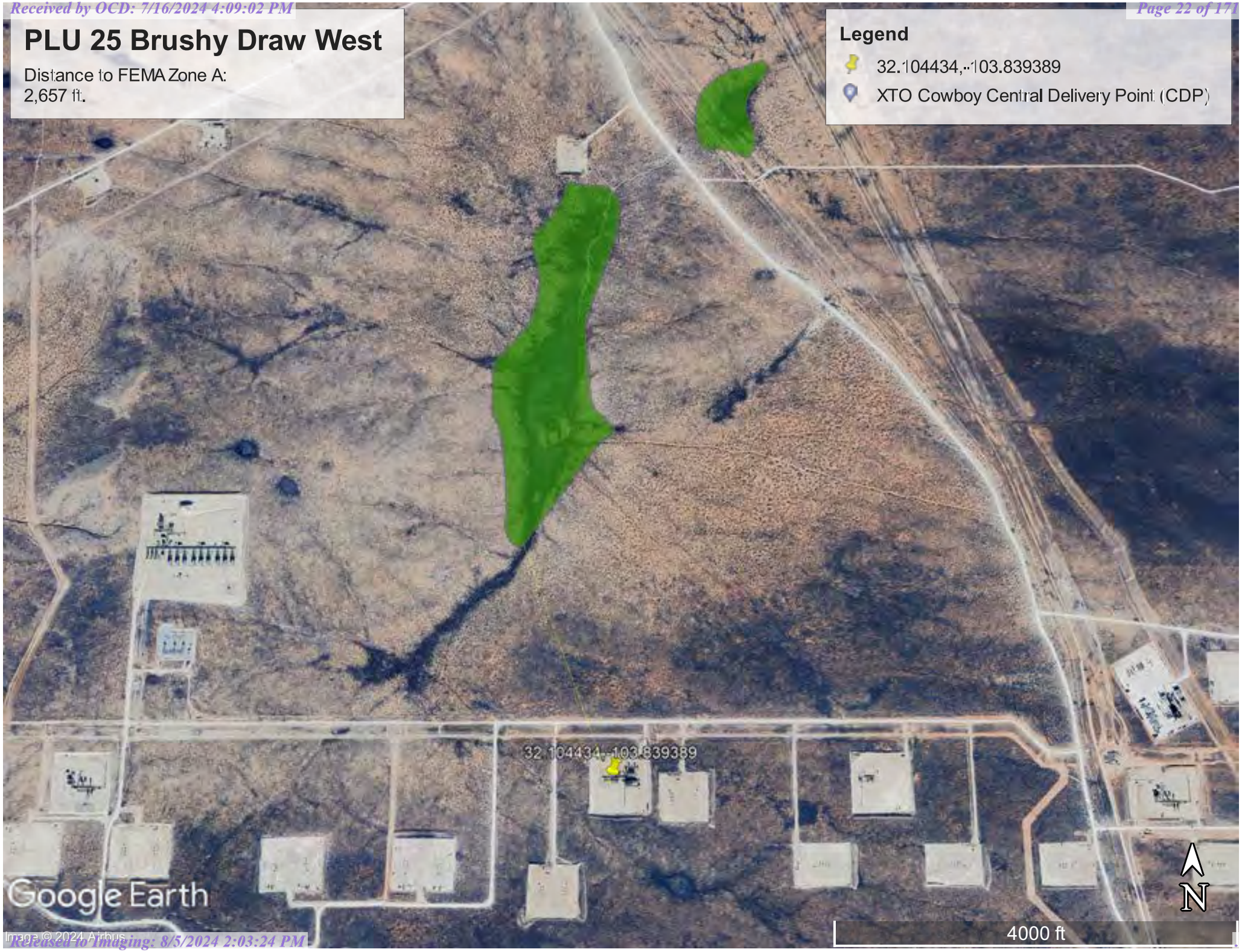
Note: Inset Map, Esri 2022; Overview Map: Esri World Topographic. Karst potential data sources from Roswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management, (2018). Karst Potential.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\XTO Energy\24E-00670 - PLU 25 Brushy Draw West\Project\24E-00670 - PLU 25 Brushy Draw West.aprx

PLU 25 Brushy Draw West

Distance to FEMA Zone A:
2,657 ft.



National Flood Hazard Layer FIRMette

FEMA

103°50'41"W 32°6'31"N

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

1:6,000

103°50'3"W 32°6'1"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/1/2024 at 5:20 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.

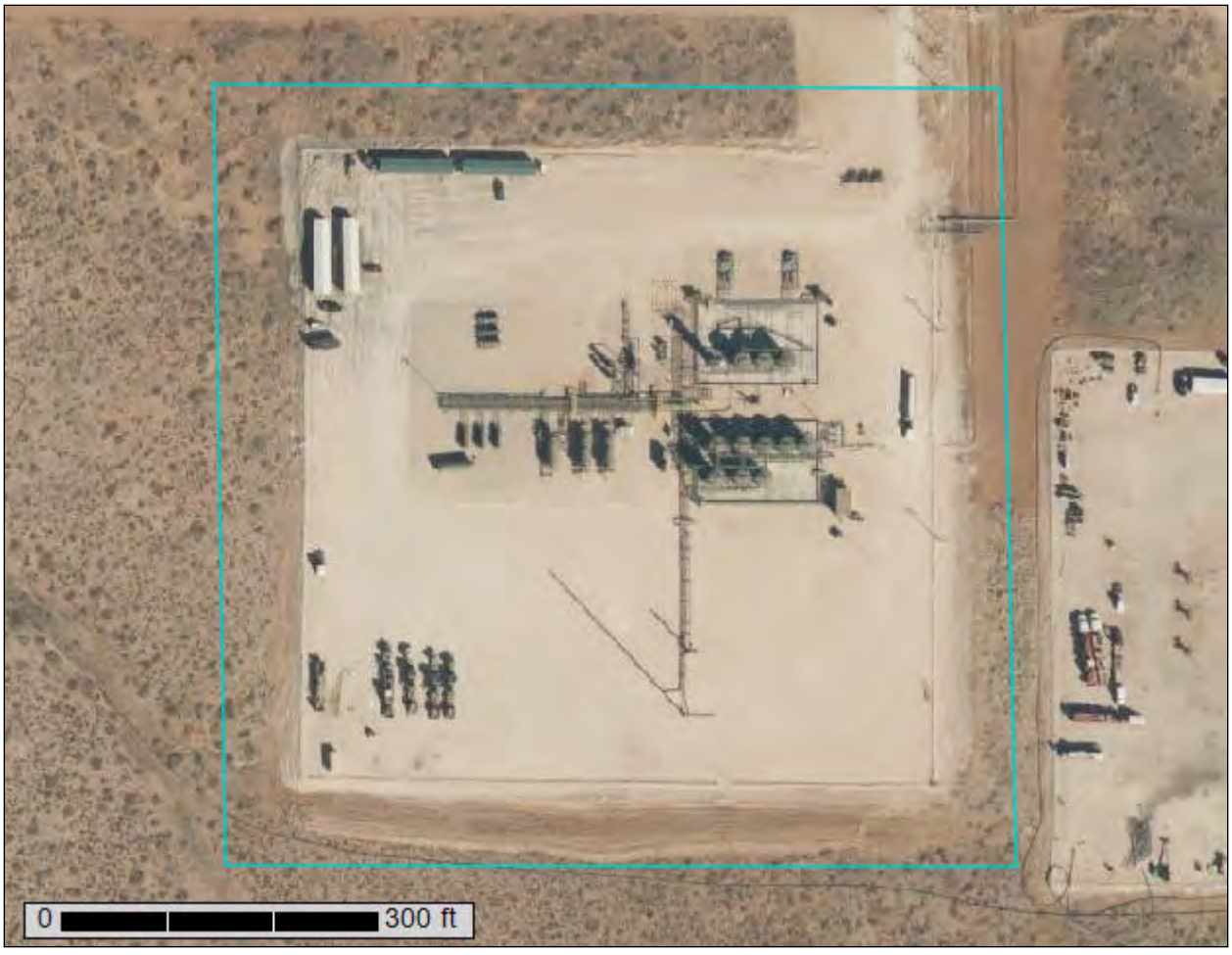
United States Department of Agriculture

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

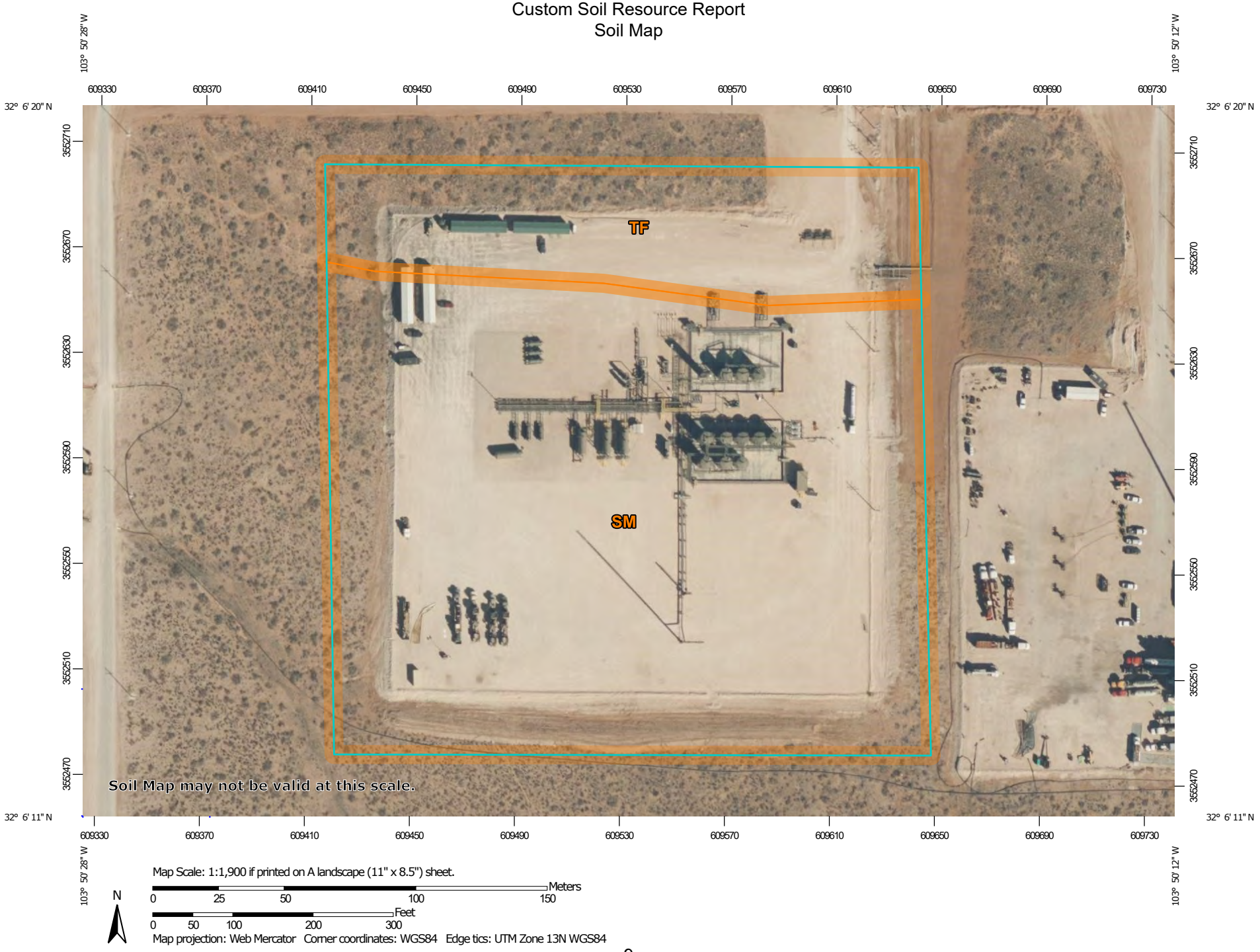


March 1, 2024

Soil Map

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

Custom Soil Resource Report
Soil Map



MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 19, Sep 7, 2023

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SM	Simona-Bippus complex, 0 to 5 percent slopes	10.0	79.4%
TF	Tonuco loamy fine sand, 0 to 3 percent slopes	2.6	20.6%
Totals for Area of Interest		**12.6**	**100.0%**

Map Unit Descriptions

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

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

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

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

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Eddy Area, New Mexico

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

Map Unit Setting

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

Map Unit Composition

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

Description of Simona

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Bippus

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

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

Minor Components

Simona

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

Bippus

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

TF—Tonuco loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w61
Elevation: 3,000 to 4,100 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 217 days
Farmland classification: Not prime farmland

Map Unit Composition

Tonuco and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tonuco

Setting

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

Typical profile

H1 - 0 to 5 inches: loamy fine sand
H2 - 5 to 15 inches: loamy fine sand
H3 - 15 to 19 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 6 to 20 inches to petrocalcic
Drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

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

Minor Components

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

Tonuco

Percent of map unit: 1 percent
Ecological site: R070BD004NM - Sandy
Hydric soil rating: No

USDA Natural Resources Conservation Service

Ecological site R070BD002NM
Shallow Sandy

Accessed: 03/01/2024

General information

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

Figure 1. Mapped extent

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

Associated sites

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

Similar sites

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

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common.

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

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

Characteristic soils are:
Simona
Jerag

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Loamy fine sand (3) Gravelly fine sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained to moderately well drained
Permeability class	Moderately slow to moderate

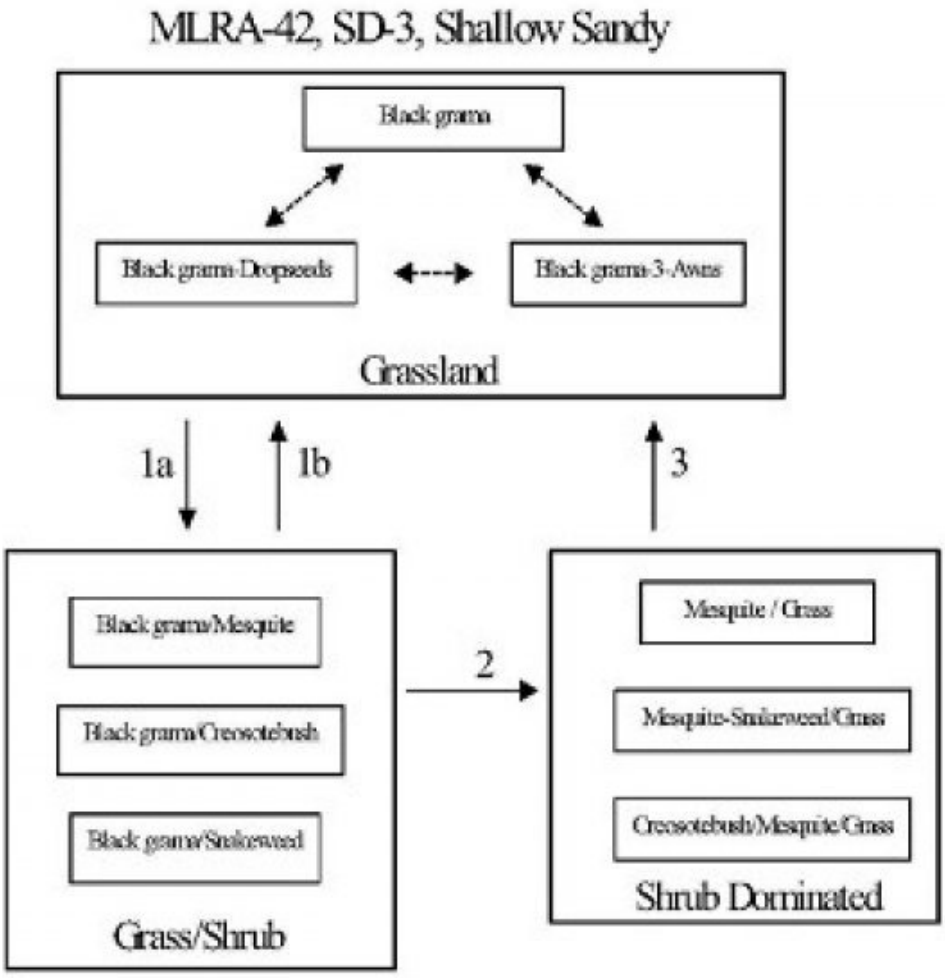
Soil depth	7–24 in
Surface fragment cover <=3"	5–25%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	5–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8
Subsurface fragment volume <=3" (Depth not specified)	5–25%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

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

State and transition model

Plant Communities and Transitional Pathways (diagram)



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

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

3. Brush control, range seeding, prescribed grazing.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: This site responds well to management and is resistant to state change, due to the shallow depth to petrocalcic horizon and sandy surface textures. The sandy surface textures allow rapid water infiltration and the petrocalcic horizon helps to keep water perched and available to shallow rooted grasses. Black grama is the dominant species in the historic plant community, averaging 50 to 60 percent of the total production for this site. Bush muhly, blue grama, and dropseeds are present as sub-dominants. Typically, yucca, javalinabush, range ratany, prickly pear, and mesquite are sparsely dotted across the landscape. Leatherweed croton, cutleaf

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	30-35%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	40-50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	15-25%

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

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

Grass/Shrub: This state is characterized by the notable presence of shrubs, especially mesquite, broom snakeweed, and/or creosotebush, however grasses remain as the dominant species. Black grama is the dominant

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

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

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

Additional community tables

Table 7. Community 1.1 plant community composition

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

ArcGIS Web Map

3/1/2024, 3:37:57 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

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

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

ArcGIS Web AppBuilder

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

General Information

NMOCD District:	District 1	Incident ID:	nAPP2403657069
Landowner:	Federal	Facility:	fAPP2126355953
Client:	XTO Energy, Inc.	Site Location:	PLU 25 Brushy Draw West
Date:	July 12, 2024	Project #:	24E-00670
Client Contact:	Amy Ruth	Phone #:	432.661.0571
Vertex PM:	Sally Carttar	Phone #:	575.361.3561

Objective

The objective of the environmental remediation work plan is to identify exceedances found during the site assessment/characterization activity and propose an appropriate remediation technique to address the produced water and crude oil release at PLU 25 Brushy Draw West. The release occurred due to corrosion and resulted in 40 barrels (bbl) of produced water to be released on the facility pad shown on Figure 1 (Attachment 1). Areas of environmental concern identified and delineated include around the production equipment on the west side of the pad. Closure criteria have been selected as per New Mexico Administrative Code 19.15.29. The closure criteria for the site are presented below in Table 1.

Table 1. Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
> 100 feet	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

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

Site Assessment/Characterization

Site characterization was started on March 18, 2024, and concluded on June 24, 2024. A total of 33 sample points were established, and 50 samples were collected for field screening. Samples were obtained at two discrete depths for horizontal delineation, and samples at the greatest lateral limits below criteria were submitted to the laboratory for analysis. Vertical limits were not attainable with the tools available due to caliche refusal and will be completed at the time of remediation. In total, 25 samples were submitted to Eurofins Environmental Testing, Albuquerque, New Mexico, for analysis. The sample locations are presented on Figure 1 (Attachment 1). Laboratory analysis results have been compared to the above noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 2). If present, exceedances to reclamation and remediation criteria are identified in the table as bold with grey background. All samples collected within the documented release area were below characterization criteria limits, as shown in Table 2 (Attachment 2). Daily field reports and laboratory data reports are included in Attachments 3 and 4, respectively. All applicable research as it pertains to closure criteria selection is presented in Attachment 5.

Proposed 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 impacts or in 0.5 foot increments, whichever is less. Field screening will be utilized to confirm removal of impacted soil below the applicable closure criteria. Excavated soils 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.

nAPP2403657069 (January 22, 2024) – Produced Water Released onto Pad

Field screening and laboratory analysis were utilized to find the horizontal and vertical extents of the spill area. A total of 40 samples were collected for analysis north and south of the production equipment. The site is constructed on a cemented material that limited collection of depth samples and requires mechanical assistance to complete vertical characterization. At least one vertical delineation location will have samples collected at 2 and 4 feet below ground surface or greater as needed within the release area during excavation. Exceedances to closure criteria were not identified; however, the release area will be excavated where accessible to a depth of 0.5 feet to remove staining and the impacted material with the highest chloride concentration. The sample locations and proposed excavations are presented on Figures 1 and 2, respectively (Attachment 1). Heavy equipment will be used to excavate open areas on the pad to remove contaminated soil. 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 utility and pipelines. Confirmation samples will be collected as per New Mexico Oil Conservation Division guidance and submitted for laboratory analysis of all applicable parameters. The estimated volume to be excavated is approximately **200 cubic yards.** Excavation is planned to be completed within 90 days of approval of this Environmental Site Remediation Work Plan. The completed NMCOD C-141 Report for the incident and the approved 90-day extension for characterization and remediation plan are presented in Attachment 6.

Sample Point	Excavation Depth	Remediation Method
BH24-01	0.5'	Excavator
BH24-02	0.5'	Excavator
BH24-03	0.5'	Handcrew or Hydrovac
BH24-04	0.5'	Handcrew or Hydrovac
BH24-05	0.5'	Handcrew or Hydrovac
BH24-06	0.5'	Handcrew or Hydrovac
BH24-09	0.5'	Excavator
BH24-10	0.5'	Excavator
BH24-11	0.5'	Excavator
BH24-12	0.5'	Excavator
BH24-13	0.5'	Excavator
BH24-14	0.5'	Excavator
BH24-15	0.5'	Excavator
BH24-16	0.5'	Excavator
BH24-17	0.5'	Excavator
BH24-18	0.5'	Excavator
BH24-19	0.5'	Handcrew or Hydrovac
BH24-20	0.5'	Handcrew or Hydrovac
BH24-24	0.5'	Handcrew or Hydrovac
BH24-27	0.5'	Excavator
BH24-28	0.5'	Excavator
BH24-29	0.5'	Excavator
BH24-33	0.5'	Handcrew or Hydrovac

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

John Rewis

July 12, 2024

John Rewis, B.Sc.
ENVIRONMENTAL TECHNICIAN, REPORTING

Date

Sally Carttar

July 12, 2024

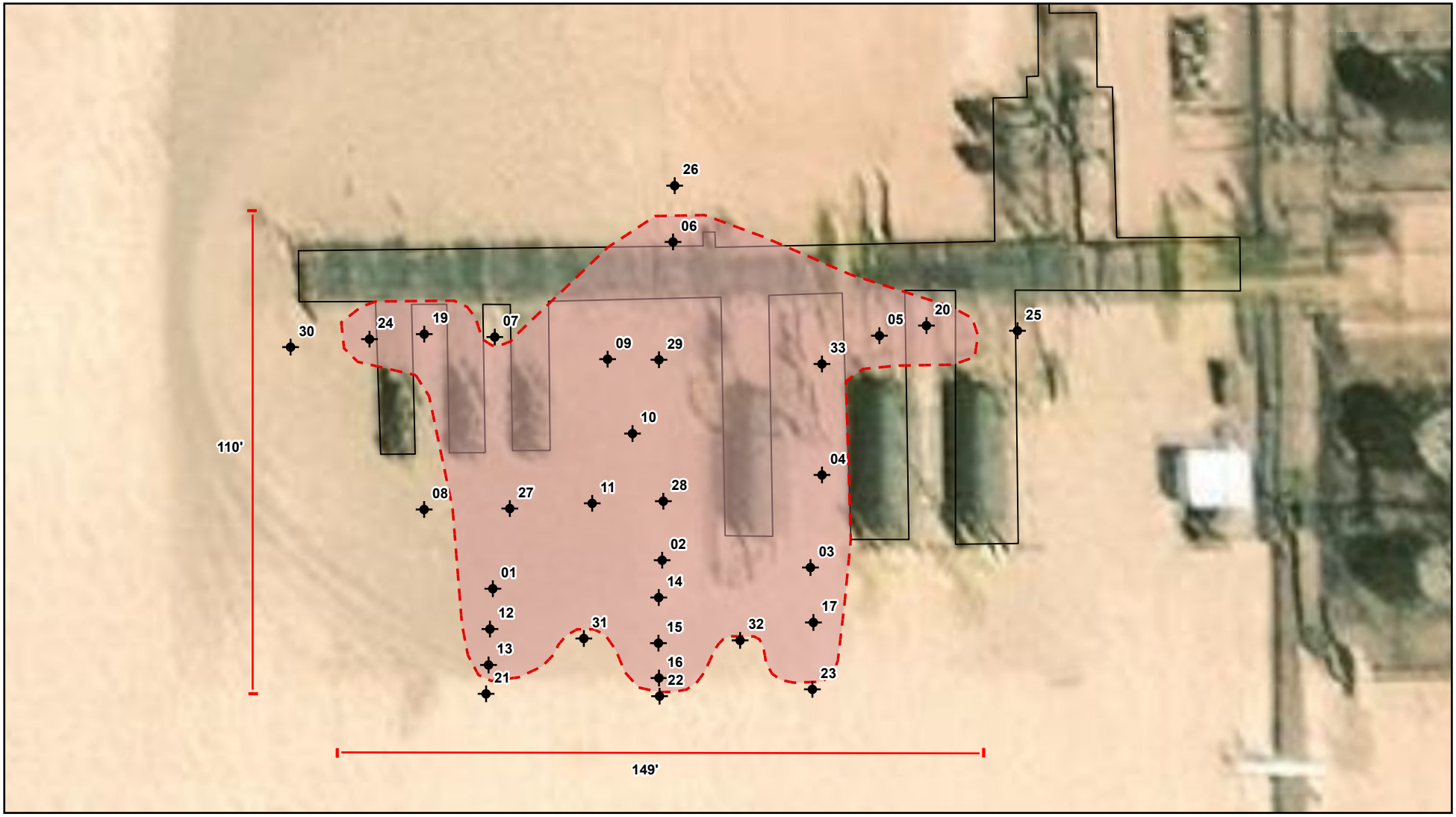
Sally Carttar, BA
PROJECT MANAGER, REPORT REVIEW

Date

Attachments

Attachment 1. Characterization Sampling and Proposed Excavation Schematics
Attachment 2. Initial Characterization Sample Field Screen and Laboratory Results – Depth to Groundwater >100 feet bgs
Attachment 3. Daily Field Reports with Photographs
Attachment 4. Laboratory Data Reports with Chain of Custody Forms
Attachment 5. Closure Criteria Research
Attachment 6. NMOCD C-141 Report

ATTACHMENT 1



Borehole (Prefixed by "BH24-") | Production Equipment | Release Area (~9,507 sq.ft.)

Circumference of Release Area: ~ 483 ft

VERTEX

0 10 20 40 ft

Map Center:
Lat/Long: 32.104438°N, 103.839305°W

NAD 1983 UTM Zone 13N
Date: Jul 09/24

N

Characterization Sampling Site Schematic
PLU 25 Brushy Draw West

FIGURE: 1

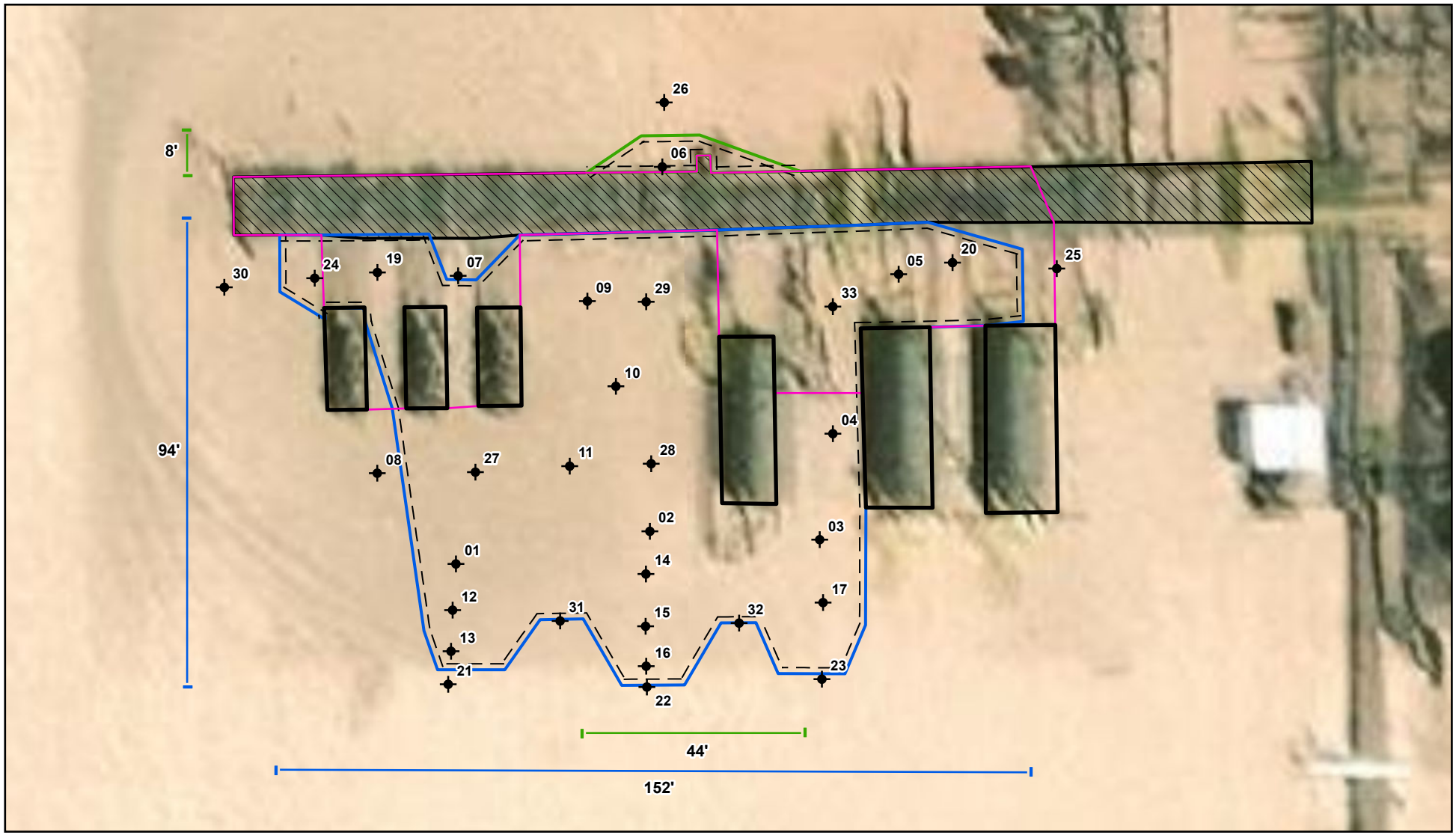
XTO ENERGY

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, 2023. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\XTO Energy\24E-00670 - PLU 25 Brushy Draw West\Project\24E-00670 - PLU 25 Brushy Draw West.aprx



Borehole (Prefixed by "BH24-")

Pipe Rack

Separator

North Proposed Excavation to 0.5 ft bgs (~197 sq.ft.)

Potential Deferral Area (~6,449 sq.ft.)

South Proposed Excavation to 0.5 ft bgs (~8,283 sq.ft.)

VERTEX

0 10 20 40 ft

Map Center:
Lat/Long: 32.104404°N, 103.839303°W

NAD 1983 UTM Zone 13N
Date: Jul 09/24

N

Proposed Excavation Schematic
PLU 25 Brushy Draw West

FIGURE:
2

XTO ENERGY

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, 2023. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\XTO Energy\24E-00670 - PLU 25 Brushy Draw West\Project\24E-00670 - PLU 25 Brushy Draw West.aprx

ATTACHMENT 2

Client Name: XTO Energy, Inc.
Site Name: PLU 25 Brushy Draw West
NMOCD Tracking #: nAPP2403657069
Project #: 24E-00670
Lab Reports: 885-1706-1, 885-1922-1, 885-2016-1, and 885-6878-1

Table 2. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening		Petroleum Hydrocarbons							Inorganic
					Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-01	0	March 18, 2024	-	5,525	-	-	-	-	-	-	-	-
BH24-02	0	March 18, 2024	-	13,500	-	-	-	-	-	-	-	-
BH24-03	0	March 18, 2024	-	10,800	-	-	-	-	-	-	-	-
BH24-04	0	March 19, 2024	-	10,228	-	-	-	-	-	-	-	-
	1.5	March 19, 2024	-	5,962	-	-	-	-	-	-	-	-
BH24-05	0	June 24, 2024	-	10,105	ND	ND	ND	ND	ND	ND	ND	11,000
BH24-06	0	March 19, 2024	-	8,005	-	-	-	-	-	-	-	-
	2	March 19, 2024	-	2,237	-	-	-	-	-	-	-	-
BH24-07	0	June 24, 2024	-	505	ND	ND	ND	ND	ND	ND	ND	370
	1.5	June 24, 2024	-	165	ND	ND	ND	ND	ND	ND	ND	95
BH24-08	0	March 18, 2024	81	450	-	-	-	-	-	-	-	-
	2	March 22, 2024	0	223	ND	ND	ND	ND	ND	ND	ND	120
BH24-09	0	June 24, 2024	-	10,353	ND	ND	ND	ND	ND	ND	ND	10,000
BH24-10	0	June 24, 2024	-	15,658	ND	ND	ND	23	ND	23	23	17,000
BH24-11	0	June 24, 2024	-	7,148	ND	ND	ND	ND	ND	ND	ND	6,700
	1.5	June 24, 2024	-	638	ND	ND	ND	ND	ND	ND	ND	280
BH24-12	0	March 19, 2024	-	799	-	-	-	-	-	-	-	-
BH24-13	0	March 20, 2024	-	635	-	-	-	-	-	-	-	-
	1.5	March 20, 2024	-	982	-	-	-	-	-	-	-	-
BH24-14	0	March 20, 2024	-	1,451	-	-	-	-	-	-	-	-
BH24-15	0	March 20, 2024	-	1,502	-	-	-	-	-	-	-	-
BH24-16	0	March 20, 2024	-	1,501	-	-	-	-	-	-	-	-
BH24-17	0	March 20, 2024	-	7,311	-	-	-	-	-	-	-	-
BH24-18	0	March 20, 2024	-	1,336	-	-	-	-	-	-	-	-
BH24-19	0	March 20, 2024	-	4,995	-	-	-	-	-	-	-	-
BH24-20	0	March 20, 2024	-	809	-	-	-	-	-	-	-	-
BH24-21	0	March 21, 2024	-	165	ND	ND	ND	ND	ND	ND	ND	270
	1.5	March 22, 2024	35	225	ND	ND	ND	ND	ND	ND	ND	50
BH24-22	0	March 21, 2024	0	483	ND	ND	ND	ND	ND	ND	ND	370
	2	March 22, 2024	25	188	ND	ND	ND	ND	ND	ND	ND	31
BH24-23	0	March 21, 2024	0	248	ND	ND	ND	ND	ND	ND	ND	76
	2	March 22, 2024	36	200	ND	ND	ND	ND	ND	ND	ND	29
BH24-24	0	March 21, 2024	0	3,125	-	-	-	-	-	-	-	-
BH24-25	0	March 21, 2024	0	250	ND	ND	ND	ND	ND	ND	ND	92
	1	March 22, 2024	46	175	ND	ND	ND	ND	ND	ND	ND	120
BH24-26	0	March 21, 2024	0	238	ND	ND	ND	ND	ND	ND	ND	130
	2	March 22, 2024	43	208	ND	ND	ND	ND	ND	ND	ND	96

Client Name: XTO Energy, Inc.
Site Name: PLU 25 Brushy Draw West
NMOCD Tracking #: nAPP2403657069
Project #: 24E-00670
Lab Reports: 885-1706-1, 885-1922-1, 885-2016-1, and 885-6878-1

Table 2. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening		Petroleum Hydrocarbons							Inorganic
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Sample ID	Depth (ft)	Sample Date	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-27	0	March 22, 2024	-	10,923	-	-	-	-	-	-	-	-
	2	March 22, 2024	-	2,763	-	-	-	-	-	-	-	-
BH24-28	0	March 22, 2024	-	10,773	-	-	-	-	-	-	-	-
	1.5	March 22, 2024	-	898	-	-	-	-	-	-	-	-
BH24-29	0	March 22, 2024	-	12,400	-	-	-	-	-	-	-	-
	1.5	March 22, 2024	-	2,763	-	-	-	-	-	-	-	-
BH24-30	0	March 22, 2024	39	140	ND	ND	ND	ND	ND	ND	ND	120
	2	March 26, 2024	3	265	ND	ND	ND	ND	ND	ND	ND	ND
BH24-31	0	June 24, 2024	-	355	ND	ND	ND	ND	ND	ND	ND	180
BH24-32	0	June 24, 2024	-	278	ND	ND	ND	ND	ND	ND	ND	130
	1	June 24, 2024	-	188	ND	ND	ND	ND	ND	ND	ND	60
BH24-33	0	June 24, 2024	-	8,080	ND	ND	ND	ND	ND	ND	ND	8,300
	2	June 24, 2024	-	703	ND	ND	ND	ND	ND	ND	ND	620

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

ATTACHMENT 3

Daily Site Visit Report

Client:	XTO Energy Inc. (US)	Inspection Date:	3/22/2024
Site Location Name:	PLU 25 Brushy Draw West	Report Run Date:	3/23/2024 2:14 AM
Client Contact Name:	Garrett Green	API #:	
Client Contact Phone #:	575-200-0729		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	3/22/2024 8:30 AM
Departed Site	

Field Notes

8:56 Arrived on site informed Amy Ruth with XTo that I'm on site, assessed area for hazards. Filled out JSAs.

8:56 There's another crew working on the gas tanks where I need to dig I made contact with them and told them what I was doing.

9:21 Began delineation

9:21 Collected BH24-26 at a depth of 2ft bgs. It was stepped out from BH24-06

10:22 BH24-25 which was stepped east of BH24-20 was sampled at a depth of 1ft due to dense caliche rock

11:17 BH24-23 was dug and sampled at a depth of 2ft bgs

12:19 BH24-22 was sampled at a depth of 2ft bgs.

13:17 BH24-21 was sampled at 1.5ft bgs hit refusal due to dense caliche layer.

14:34 BH24-27 was sampled at a depth of 1.5 feet bgs hit refusal due to caliche.

15:22 BH24-28 reached a depth of 1.5ft bgs hit refusal due to dense caliche layer

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Southwest

BH24-26 was stepped out roughly 3ft from BH24-06

Viewing Direction: Northwest

BH24-25 which was sampled east of BH24-20 roughly 10 ft due to pipeline areas

Viewing Direction: North

BH24-23 located roughly 3ft south of BH24-16

Viewing Direction: North

BH24-22 was stepped out from BH24-16 roughly 3ft

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
BH24-21 was stepped out from BH24-13 roughly 3ft	BH24-27 located just south of the inner most water transfer pump roughly 10 ft
Viewing Direction: Northeast	**Viewing Direction**: Northeast
	
BH24-28 located just west of the front of heater treater	BH24-29 reached a depth of 2ft hit refusal due to dense caliche layer

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Wyatt Wadleigh

Signature:

Daily Site Visit Report

Client:	XTO Energy Inc. (US)	Inspection Date:	6/24/2024
Site Location Name:	PLU 25 Brushy Draw West	Report Run Date:	6/24/2024 11:38 PM
Client Contact Name:	Marshall Boles	API #:	
Client Contact Phone #:	(806) 367-2174		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/24/2024 9:16 AM
Departed Site	6/24/2024 3:28 PM

Field Notes

9:56 Informed Wes Byrd of my arrival on site and assessed site for hazards. Filled out safety documentation.

On site to collect 12 more samples to complete delineation.

14:30 Located areas to be sampled via gps and marked location with paint.

Began collecting:
-BH24-05, -09, -10, and -31 at surface (0')

-BH24-07, -11 at 0' and 1.5' (hit refusal)

-BH24-32 at 0' and 1' (hit refusal).

-BH24-33at 0' and 2'

14:30 All samples field screened for Chlorides using titration. All samples passed field screening criteria

Next Steps & Recommendations

Daily Site Visit Report

1 Jar samples and send to lab for analysis

Daily Site Visit Report

Site Photos

Viewing Direction: North

Overview of area sampled

Viewing Direction: Northeast

BH24-05 at surface (0’)

Viewing Direction: East

BH24-07 at surface (0’) and 1.5’. Hit refusal

Viewing Direction: East

BH24-09 at surface (0’)

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
BH24-10 at surface (0’)	BH24-11 at surface (0’) and 1.5’. Hit refusal
Viewing Direction: North	**Viewing Direction**: North
	
BH24-31 at surface (0’)	BH24-32 at surface (0’) and 1’. Hit refusal

Daily Site Visit Report

Viewing Direction: North

BH24-33 at surface (0') and 2'. Hit refusal.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Andrew Ludvik

Signature: 

ATTACHMENT 4

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carter
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 3/29/2024 12:17:39 PM

JOB DESCRIPTION

PLU 25 Brushy Draw West

JOB NUMBER

885-1706-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
3/29/2024 12:17:39 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Laboratory Job ID: 885-1706-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-1706-1
Project/Site: PLU 25 Brushy Draw West

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-1706-1
Project: PLU 25 Brushy Draw West

Job ID: 885-1706-1 Eurofins Albuquerque

Job Narrative
885-1706-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 3/23/2024 10:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.2°C.

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: BH24-08 2ft (885-1706-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-76734 and analytical batch 880-76669 was outside the upper control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Client Sample ID: BH24-08 2ft

Date Collected: 03/21/24 12:00
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-1

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 18:34	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 18:34	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 18:34	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 18:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*69*	*S1-*	*70 - 130*	*03/27/24 09:11*	*03/27/24 18:34*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*03/27/24 09:11*	*03/27/24 18:34*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/27/24 12:12	03/27/24 18:44	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 18:44	1
Oll Range Organics (Over C28-C36)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 18:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*03/27/24 12:12*	*03/27/24 18:44*	*1*
o-Terphenyl	*87*		*70 - 130*	*03/27/24 12:12*	*03/27/24 18:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		5.0		mg/Kg			03/27/24 23:45	1

Client Sample ID: BH24-21 0ft

Date Collected: 03/21/24 12:15
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-2

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 18:55	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 18:55	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 18:55	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*74*		*70 - 130*	*03/27/24 09:11*	*03/27/24 18:55*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*03/27/24 09:11*	*03/27/24 18:55*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/27/24 12:12	03/27/24 19:48	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 19:48	1
Oll Range Organics (Over C28-C36)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 19:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*03/27/24 12:12*	*03/27/24 19:48*	*1*
o-Terphenyl	*80*		*70 - 130*	*03/27/24 12:12*	*03/27/24 19:48*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Client Sample ID: BH24-21 0ft
Date Collected: 03/21/24 12:15
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-2
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	270		5.0		mg/Kg			03/28/24 00:14	1

Client Sample ID: BH24-22 0ft
Date Collected: 03/21/24 12:30
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-3
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:15	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:15	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:15	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*73*		*70 - 130*	*03/27/24 09:11*	*03/27/24 19:15*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*03/27/24 09:11*	*03/27/24 19:15*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:10	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:10	1
Oil Range Organics (Over C28-C36)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*115*		*70 - 130*	*03/27/24 12:12*	*03/27/24 20:10*	*1*
o-Terphenyl	*91*		*70 - 130*	*03/27/24 12:12*	*03/27/24 20:10*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	370		5.0		mg/Kg			03/28/24 00:29	1

Client Sample ID: BH24-23 0ft
Date Collected: 03/21/24 12:45
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-4
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:36	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:36	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:36	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*75*		*70 - 130*	*03/27/24 09:11*	*03/27/24 19:36*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*03/27/24 09:11*	*03/27/24 19:36*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:32	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Client Sample ID: BH24-23 0ft
Date Collected: 03/21/24 12:45
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-4
Matrix: Solid

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:32	1
Oll Range Organics (Over C28-C36)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*103*		*70 - 130*	*03/27/24 12:12*	*03/27/24 20:32*	*1*
o-Terphenyl	*84*		*70 - 130*	*03/27/24 12:12*	*03/27/24 20:32*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**76**		5.0		mg/Kg			03/28/24 00:34	1

Client Sample ID: BH24-25 0ft
Date Collected: 03/21/24 13:00
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-5
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:57	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:57	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 19:57	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*70*		*70 - 130*	*03/27/24 09:11*	*03/27/24 19:57*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*03/27/24 09:11*	*03/27/24 19:57*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:53	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:53	1
Oll Range Organics (Over C28-C36)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*92*		*70 - 130*	*03/27/24 12:12*	*03/27/24 20:53*	*1*
o-Terphenyl	*72*		*70 - 130*	*03/27/24 12:12*	*03/27/24 20:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**92**		5.0		mg/Kg			03/28/24 00:38	1

Client Sample ID: BH24-26 0ft
Date Collected: 03/21/24 13:15
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-6
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 20:17	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 20:17	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 20:17	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 20:17	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Client Sample ID: BH24-26 0ft

Date Collected: 03/21/24 13:15
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-6

Matrix: Solid

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*77*		*70 - 130*	*03/27/24 09:11*	*03/27/24 20:17*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*03/27/24 09:11*	*03/27/24 20:17*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50	mg/Kg		03/27/24 12:12	03/27/24 21:15	1
Diesel Range Organics (Over C10-C28)	ND		50	mg/Kg		03/27/24 12:12	03/27/24 21:15	1
Oil Range Organics (Over C28-C36)	ND		50	mg/Kg		03/27/24 12:12	03/27/24 21:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*97*		*70 - 130*	*03/27/24 12:12*	*03/27/24 21:15*	*1*
o-Terphenyl	*82*		*70 - 130*	*03/27/24 12:12*	*03/27/24 21:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		5.0	mg/Kg			03/28/24 00:43	1

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-76689/5-A
Matrix: Solid
Analysis Batch: 76683

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76689

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 13:40	1
Toluene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 13:40	1
Ethylbenzene	ND		0.0020		mg/Kg		03/27/24 09:11	03/27/24 13:40	1
Xylenes, Total	ND		0.0040		mg/Kg		03/27/24 09:11	03/27/24 13:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*72*		*70 - 130*	*03/27/24 09:11*	*03/27/24 13:40*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*	*03/27/24 09:11*	*03/27/24 13:40*	*1*

Lab Sample ID: LCS 880-76689/1-A
Matrix: Solid
Analysis Batch: 76683

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 76689

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.107		mg/Kg		107	70 - 130		
Toluene			0.100	0.103		mg/Kg		103	70 - 130		
Ethylbenzene			0.100	0.0921		mg/Kg		92	70 - 130		
m-Xylene & p-Xylene			0.200	0.182		mg/Kg		91	70 - 130		
o-Xylene			0.100	0.0880		mg/Kg		88	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*
1,4-Difluorobenzene (Surr)	*119*		*70 - 130*

Lab Sample ID: LCSD 880-76689/2-A
Matrix: Solid
Analysis Batch: 76683

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 76689

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.105		mg/Kg		105	70 - 130	2	35
Toluene			0.100	0.101		mg/Kg		101	70 - 130	1	35
Ethylbenzene			0.100	0.0929		mg/Kg		93	70 - 130	1	35
m-Xylene & p-Xylene			0.200	0.183		mg/Kg		92	70 - 130	1	35
o-Xylene			0.100	0.0893		mg/Kg		89	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*
1,4-Difluorobenzene (Surr)	*117*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-76734/1-A
Matrix: Solid
Analysis Batch: 76669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76734

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/27/24 12:12	03/27/24 17:39	1

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-76734/1-A
Matrix: Solid
Analysis Batch: 76669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76734

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 17:39	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/27/24 12:12	03/27/24 17:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*161*	*S1+*	*70 - 130*	*03/27/24 12:12*	*03/27/24 17:39*	*1*
o-Terphenyl	*149*	*S1+*	*70 - 130*	*03/27/24 12:12*	*03/27/24 17:39*	*1*

Lab Sample ID: LCS 880-76734/2-A
Matrix: Solid
Analysis Batch: 76669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 76734

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	956		mg/Kg		96	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	910		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*105*		*70 - 130*
o-Terphenyl	*106*		*70 - 130*

Lab Sample ID: LCSD 880-76734/3-A
Matrix: Solid
Analysis Batch: 76669

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 76734

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	972		mg/Kg		97	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	942		mg/Kg		94	70 - 130	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*109*		*70 - 130*
o-Terphenyl	*107*		*70 - 130*

Lab Sample ID: 885-1706-1 MS
Matrix: Solid
Analysis Batch: 76669

Client Sample ID: BH24-08 2ft
Prep Type: Total/NA
Prep Batch: 76734

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	ND		1000	795		mg/Kg		78	70 - 130		
Diesel Range Organics (Over C10-C28)	ND		1000	885		mg/Kg		89	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*101*		*70 - 130*
o-Terphenyl	*82*		*70 - 130*

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 885-1706-1 MSD
Matrix: Solid
Analysis Batch: 76669

Client Sample ID: BH24-08 2ft
Prep Type: Total/NA
Prep Batch: 76734

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	ND		1000	810		mg/Kg		79	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	ND		1000	909		mg/Kg		91	70 - 130	3	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*105*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-76738/1-A
Matrix: Solid
Analysis Batch: 76756

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			03/27/24 23:31	1

Lab Sample ID: LCS 880-76738/2-A
Matrix: Solid
Analysis Batch: 76756

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	234		mg/Kg		94	90 - 110		

Lab Sample ID: LCSD 880-76738/3-A
Matrix: Solid
Analysis Batch: 76756

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	235		mg/Kg		94	90 - 110	0	20

Lab Sample ID: 885-1706-1 MS
Matrix: Solid
Analysis Batch: 76756

Client Sample ID: BH24-08 2ft
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	120		252	362		mg/Kg		96	90 - 110		

Lab Sample ID: 885-1706-1 MSD
Matrix: Solid
Analysis Batch: 76756

Client Sample ID: BH24-08 2ft
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	120		252	361		mg/Kg		96	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

GC VOA

Analysis Batch: 76683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1706-1	BH24-08 2ft	Total/NA	Solid	8021B	76689
885-1706-2	BH24-21 0ft	Total/NA	Solid	8021B	76689
885-1706-3	BH24-22 0ft	Total/NA	Solid	8021B	76689
885-1706-4	BH24-23 0ft	Total/NA	Solid	8021B	76689
885-1706-5	BH24-25 0ft	Total/NA	Solid	8021B	76689
885-1706-6	BH24-26 0ft	Total/NA	Solid	8021B	76689
MB 880-76689/5-A	Method Blank	Total/NA	Solid	8021B	76689
LCS 880-76689/1-A	Lab Control Sample	Total/NA	Solid	8021B	76689
LCSD 880-76689/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	76689

Prep Batch: 76689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1706-1	BH24-08 2ft	Total/NA	Solid	5035	
885-1706-2	BH24-21 0ft	Total/NA	Solid	5035	
885-1706-3	BH24-22 0ft	Total/NA	Solid	5035	
885-1706-4	BH24-23 0ft	Total/NA	Solid	5035	
885-1706-5	BH24-25 0ft	Total/NA	Solid	5035	
885-1706-6	BH24-26 0ft	Total/NA	Solid	5035	
MB 880-76689/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-76689/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-76689/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Analysis Batch: 76669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1706-1	BH24-08 2ft	Total/NA	Solid	8015B NM	76734
885-1706-2	BH24-21 0ft	Total/NA	Solid	8015B NM	76734
885-1706-3	BH24-22 0ft	Total/NA	Solid	8015B NM	76734
885-1706-4	BH24-23 0ft	Total/NA	Solid	8015B NM	76734
885-1706-5	BH24-25 0ft	Total/NA	Solid	8015B NM	76734
885-1706-6	BH24-26 0ft	Total/NA	Solid	8015B NM	76734
MB 880-76734/1-A	Method Blank	Total/NA	Solid	8015B NM	76734
LCS 880-76734/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	76734
LCSD 880-76734/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	76734
885-1706-1 MS	BH24-08 2ft	Total/NA	Solid	8015B NM	76734
885-1706-1 MSD	BH24-08 2ft	Total/NA	Solid	8015B NM	76734

Prep Batch: 76734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1706-1	BH24-08 2ft	Total/NA	Solid	8015NM Prep	
885-1706-2	BH24-21 0ft	Total/NA	Solid	8015NM Prep	
885-1706-3	BH24-22 0ft	Total/NA	Solid	8015NM Prep	
885-1706-4	BH24-23 0ft	Total/NA	Solid	8015NM Prep	
885-1706-5	BH24-25 0ft	Total/NA	Solid	8015NM Prep	
885-1706-6	BH24-26 0ft	Total/NA	Solid	8015NM Prep	
MB 880-76734/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-76734/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-76734/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
885-1706-1 MS	BH24-08 2ft	Total/NA	Solid	8015NM Prep	
885-1706-1 MSD	BH24-08 2ft	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

HPLC/IC

Leach Batch: 76738

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1706-1	BH24-08 2ft	Soluble	Solid	DI Leach	
885-1706-2	BH24-21 0ft	Soluble	Solid	DI Leach	
885-1706-3	BH24-22 0ft	Soluble	Solid	DI Leach	
885-1706-4	BH24-23 0ft	Soluble	Solid	DI Leach	
885-1706-5	BH24-25 0ft	Soluble	Solid	DI Leach	
885-1706-6	BH24-26 0ft	Soluble	Solid	DI Leach	
MB 880-76738/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-76738/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-76738/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
885-1706-1 MS	BH24-08 2ft	Soluble	Solid	DI Leach	
885-1706-1 MSD	BH24-08 2ft	Soluble	Solid	DI Leach	

Analysis Batch: 76756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1706-1	BH24-08 2ft	Soluble	Solid	300.0	76738
885-1706-2	BH24-21 0ft	Soluble	Solid	300.0	76738
885-1706-3	BH24-22 0ft	Soluble	Solid	300.0	76738
885-1706-4	BH24-23 0ft	Soluble	Solid	300.0	76738
885-1706-5	BH24-25 0ft	Soluble	Solid	300.0	76738
885-1706-6	BH24-26 0ft	Soluble	Solid	300.0	76738
MB 880-76738/1-A	Method Blank	Soluble	Solid	300.0	76738
LCS 880-76738/2-A	Lab Control Sample	Soluble	Solid	300.0	76738
LCSD 880-76738/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	76738
885-1706-1 MS	BH24-08 2ft	Soluble	Solid	300.0	76738
885-1706-1 MSD	BH24-08 2ft	Soluble	Solid	300.0	76738

Lab Chronicle

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1706-1

Client Sample ID: BH24-08 2ft
Date Collected: 03/21/24 12:00
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76689	EL	EET MID	03/27/24 09:11
Total/NA	Analysis	8021B		1	76683	MNR	EET MID	03/27/24 18:34
Total/NA	Prep	8015NM Prep			76734	EL	EET MID	03/27/24 12:12
Total/NA	Analysis	8015B NM		1	76669	SM	EET MID	03/27/24 18:44
Soluble	Leach	DI Leach			76738	SA	EET MID	03/27/24 12:17
Soluble	Analysis	300.0		1	76756	SMC	EET MID	03/27/24 23:45

Client Sample ID: BH24-21 0ft
Date Collected: 03/21/24 12:15
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76689	EL	EET MID	03/27/24 09:11
Total/NA	Analysis	8021B		1	76683	MNR	EET MID	03/27/24 18:55
Total/NA	Prep	8015NM Prep			76734	EL	EET MID	03/27/24 12:12
Total/NA	Analysis	8015B NM		1	76669	SM	EET MID	03/27/24 19:48
Soluble	Leach	DI Leach			76738	SA	EET MID	03/27/24 12:17
Soluble	Analysis	300.0		1	76756	SMC	EET MID	03/28/24 00:14

Client Sample ID: BH24-22 0ft
Date Collected: 03/21/24 12:30
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76689	EL	EET MID	03/27/24 09:11
Total/NA	Analysis	8021B		1	76683	MNR	EET MID	03/27/24 19:15
Total/NA	Prep	8015NM Prep			76734	EL	EET MID	03/27/24 12:12
Total/NA	Analysis	8015B NM		1	76669	SM	EET MID	03/27/24 20:10
Soluble	Leach	DI Leach			76738	SA	EET MID	03/27/24 12:17
Soluble	Analysis	300.0		1	76756	SMC	EET MID	03/28/24 00:29

Client Sample ID: BH24-23 0ft
Date Collected: 03/21/24 12:45
Date Received: 03/23/24 10:40

Lab Sample ID: 885-1706-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76689	EL	EET MID	03/27/24 09:11
Total/NA	Analysis	8021B		1	76683	MNR	EET MID	03/27/24 19:36
Total/NA	Prep	8015NM Prep			76734	EL	EET MID	03/27/24 12:12
Total/NA	Analysis	8015B NM		1	76669	SM	EET MID	03/27/24 20:32
Soluble	Leach	DI Leach			76738	SA	EET MID	03/27/24 12:17
Soluble	Analysis	300.0		1	76756	SMC	EET MID	03/28/24 00:34

Lab Chronicle

Client: Vertex
Job ID: 885-1706-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-25 0ft
Lab Sample ID: 885-1706-5
Date Collected: 03/21/24 13:00
Matrix: Solid
Date Received: 03/23/24 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76689	EL	EET MID	03/27/24 09:11
Total/NA	Analysis	8021B		1	76683	MNR	EET MID	03/27/24 19:57
Total/NA	Prep	8015NM Prep			76734	EL	EET MID	03/27/24 12:12
Total/NA	Analysis	8015B NM		1	76669	SM	EET MID	03/27/24 20:53
Soluble	Leach	DI Leach			76738	SA	EET MID	03/27/24 12:17
Soluble	Analysis	300.0		1	76756	SMC	EET MID	03/28/24 00:38

Client Sample ID: BH24-26 0ft
Lab Sample ID: 885-1706-6
Date Collected: 03/21/24 13:15
Matrix: Solid
Date Received: 03/23/24 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76689	EL	EET MID	03/27/24 09:11
Total/NA	Analysis	8021B		1	76683	MNR	EET MID	03/27/24 20:17
Total/NA	Prep	8015NM Prep			76734	EL	EET MID	03/27/24 12:12
Total/NA	Analysis	8015B NM		1	76669	SM	EET MID	03/27/24 21:15
Soluble	Leach	DI Leach			76738	SA	EET MID	03/27/24 12:17
Soluble	Analysis	300.0		1	76756	SMC	EET MID	03/28/24 00:43

Laboratory References:
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Vertex Job ID: 885-1706-1
Project/Site: PLU 25 Brushy Draw West

Laboratory: Eurofins Midland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

Chain-of-Custody Record

Client Vertex (XTO)

Mailing Address On File

Phone # On File

email or Fax# Scartter@vertex ca

QA/QC Package

☐ Standard ☐ Level 4 (Full Validation)

Accreditation ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time

☑ Standard ☑ Rush 5 Day

Project Name PLU 25 Brushy Draw West

Project # 24E-00670

Project Manager Sally Carttar

Sampler Wyatt Wadleigh

On Ice: ☒ Yes ☐ No Morty

# of Coolers: 1

Cooler Temp(Including CF): 5.2+0=5.2°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www hallenvironmental com

4901 Hawkins NE - Albuquerque, NM 87109

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

885-1706 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504 1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
03/21/24	12.00	Soil	BH24-08 2ft	1, 4oz jar		1	X	X					X			
03/21/24	12 15	Soil	BH24-21 0ft	1, 4oz jar		2	X	X					X			
03/21/24	12 30	Soil	BH24-22 0ft	1, 4oz jar		3	X	X					X			
03/21/24	12 45	Soil	BH24-23 0ft	1, 4oz jar		4	X	X					X			
03/21/24	13 00	Soil	BH24-25 0ft	1, 4oz jar		5	X	X					X			
03/21/24	13 15	Soil	BH24-26 0ft	1, 4oz jar		6	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
3/22/24	930	Wyatt Wadleigh			3/22/24	930
3/22/24	1900			Courier	3/23/24	10.40

Remarks Please CC wwadleigh@vertex ca

Cost center Number 2191851001

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 repo

Chain-of-Custody Record

Client: Hilcorp Energy Co.
Attn: Mitch Killough
Mailing Address:

Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: Next Results
☐ Standard ☒ Rush Day. by 3-26-2024
Project Name: Riverine 1
Project #:

Project Manager: Stuart Hyde
Sampler: Danny Burns
On Ice: ☒ Yes ☐ No monty
# of Coolers: 1
Cooler Temp(including CF): 2.9+0=2.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107
885-1702 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D GRO / DRO / MRO	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
3-22-2024	10:30	soil	FS01@5'	1-4oz	cool		X	X					X			
3-22-2024	10:40	soil	CSW01@0'-5'	1-4oz	cool		X	X					X			

Date: 3-22-2024 Time: 1341 Relinquished by:
Received by: Via: Date Time 3/22/24 1341
Date: 3/22/24 Time: 1800 Relinquished by:
Received by: Via courier Date Time 3/23/24 0:45

Remarks:

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-1706-1

Login Number: 1706 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-1706-1

Login Number: 1706
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 03/27/24 11:39 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carter
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 4/3/2024 3:30:18 PM

JOB DESCRIPTION

PLU 25 Brushy Draw West

JOB NUMBER

885-1922-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
4/3/2024 3:30:18 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Laboratory Job ID: 885-1922-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-1922-1
Project/Site: PLU 25 Brushy Draw West

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-1922-1
Project: PLU 25 Brushy Draw West

Job ID: 885-1922-1 Eurofins Albuquerque

Job Narrative
885-1922-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 3/28/2024 8:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.7°C.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-76919 and analytical batch 880-76887 was outside the upper control limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
Method 300_ORGFM_28D - Soluble: The Chloride matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-77127 and analytical batch 880-77142 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

BH24-21 2ft (885-1922-1), BH24-22 2ft (885-1922-2), BH24-23 0ft (885-1922-3), BH24-30 0ft (885-1922-4), BH24-25 1ft (885-1922-5) and BH24-26 2ft (885-1922-6)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-21 2ft

Date Collected: 03/22/24 10:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-1

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 16:01	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 16:01	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 16:01	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*	*03/29/24 12:05*	*03/29/24 16:01*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*03/29/24 12:05*	*03/29/24 16:01*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 12:09	03/29/24 13:47	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 13:47	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 13:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*03/29/24 12:09*	*03/29/24 13:47*	*1*
o-Terphenyl	*83*		*70 - 130*	*03/29/24 12:09*	*03/29/24 13:47*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**50**		5.0		mg/Kg			04/02/24 18:55	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-22 2ft

Date Collected: 03/22/24 10:30
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-2

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 16:21	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 16:21	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 16:21	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 16:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*03/29/24 12:05*	*03/29/24 16:21*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*03/29/24 12:05*	*03/29/24 16:21*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:08	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:08	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*03/29/24 12:09*	*03/29/24 14:08*	*1*
o-Terphenyl	*80*		*70 - 130*	*03/29/24 12:09*	*03/29/24 14:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**31**		5.1		mg/Kg			04/02/24 19:01	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-23 0ft

Date Collected: 03/22/24 11:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-3

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 17:45	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 17:45	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 17:45	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*77*		*70 - 130*	*03/29/24 12:05*	*03/29/24 17:45*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*03/29/24 12:05*	*03/29/24 17:45*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:30	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:30	1
Oil Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*03/29/24 12:09*	*03/29/24 14:30*	*1*
o-Terphenyl	*84*		*70 - 130*	*03/29/24 12:09*	*03/29/24 14:30*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**29**		5.0		mg/Kg			04/02/24 19:20	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-30 0ft

Date Collected: 03/22/24 14:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-4

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:06	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:06	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:06	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*	*03/29/24 12:05*	*03/29/24 18:06*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*03/29/24 12:05*	*03/29/24 18:06*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:52	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:52	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 14:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*90*		*70 - 130*	*03/29/24 12:09*	*03/29/24 14:52*	*1*
o-Terphenyl	*75*		*70 - 130*	*03/29/24 12:09*	*03/29/24 14:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		5.0		mg/Kg			04/02/24 19:26	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-25 1ft

Date Collected: 03/22/24 11:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-5

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:26	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:26	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:26	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 18:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*70 - 130*	*03/29/24 12:05*	*03/29/24 18:26*	*1*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*	*03/29/24 12:05*	*03/29/24 18:26*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 12:09	03/29/24 15:14	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 15:14	1
Oil Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*113*		*70 - 130*	*03/29/24 12:09*	*03/29/24 15:14*	*1*
o-Terphenyl	*96*		*70 - 130*	*03/29/24 12:09*	*03/29/24 15:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		5.0		mg/Kg			04/02/24 19:32	1

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-26 2ft

Date Collected: 03/22/24 12:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-6

Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:46	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:46	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 18:46	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*	*03/29/24 12:05*	*03/29/24 18:46*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*03/29/24 12:05*	*03/29/24 18:46*	*1*

Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 12:09	03/29/24 15:35	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 15:35	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 12:09	03/29/24 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*103*		*70 - 130*	*03/29/24 12:09*	*03/29/24 15:35*	*1*
o-Terphenyl	*86*		*70 - 130*	*03/29/24 12:09*	*03/29/24 15:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**96**		5.0		mg/Kg			04/02/24 19:39	1

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-76918/5-A
Matrix: Solid
Analysis Batch: 76894

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76918

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 12:54	1
Toluene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 12:54	1
Ethylbenzene	ND		0.0020		mg/Kg		03/29/24 12:05	03/29/24 12:54	1
Xylenes, Total	ND		0.0040		mg/Kg		03/29/24 12:05	03/29/24 12:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*72*		*70 - 130*	*03/29/24 12:05*	*03/29/24 12:54*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*03/29/24 12:05*	*03/29/24 12:54*	*1*

Lab Sample ID: LCS 880-76918/1-A
Matrix: Solid
Analysis Batch: 76894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 76918

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.112		mg/Kg		112	70 - 130		
Toluene			0.100	0.109		mg/Kg		109	70 - 130		
Ethylbenzene			0.100	0.104		mg/Kg		104	70 - 130		
m-Xylene & p-Xylene			0.200	0.201		mg/Kg		101	70 - 130		
o-Xylene			0.100	0.0989		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*
1,4-Difluorobenzene (Surr)	*120*		*70 - 130*

Lab Sample ID: LCSD 880-76918/2-A
Matrix: Solid
Analysis Batch: 76894

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 76918

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.105		mg/Kg		105	70 - 130	6	35
Toluene			0.100	0.100		mg/Kg		100	70 - 130	9	35
Ethylbenzene			0.100	0.0941		mg/Kg		94	70 - 130	10	35
m-Xylene & p-Xylene			0.200	0.188		mg/Kg		94	70 - 130	7	35
o-Xylene			0.100	0.0916		mg/Kg		92	70 - 130	8	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*
1,4-Difluorobenzene (Surr)	*120*		*70 - 130*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-76919/1-A
Matrix: Solid
Analysis Batch: 76887

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76919

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/29/24 09:00	03/29/24 09:33	1

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 880-76919/1-A
Matrix: Solid
Analysis Batch: 76887

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76919

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/29/24 09:00	03/29/24 09:33	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/29/24 09:00	03/29/24 09:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*182*	*S1+*	*70 - 130*	*03/29/24 09:00*	*03/29/24 09:33*	*1*
o-Terphenyl	*168*	*S1+*	*70 - 130*	*03/29/24 09:00*	*03/29/24 09:33*	*1*

Lab Sample ID: LCS 880-76919/2-A
Matrix: Solid
Analysis Batch: 76887

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 76919

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	912		mg/Kg		91	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	915		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*105*		*70 - 130*
o-Terphenyl	*105*		*70 - 130*

Lab Sample ID: LCSD 880-76919/3-A
Matrix: Solid
Analysis Batch: 76887

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 76919

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	959		mg/Kg		96	70 - 130	5	20
Diesel Range Organics (Over C10-C28)			1000	923		mg/Kg		92	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*104*		*70 - 130*
o-Terphenyl	*105*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-77127/1-A
Matrix: Solid
Analysis Batch: 77142

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			04/02/24 18:05	1

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-77127/2-A
Matrix: Solid
Analysis Batch: 77142

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	251		mg/Kg		100	90 - 110		

Lab Sample ID: LCSD 880-77127/3-A
Matrix: Solid
Analysis Batch: 77142

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	251		mg/Kg		100	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

GC VOA

Analysis Batch: 76894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1922-1	BH24-21 2ft	Total/NA	Solid	8021B	76918
885-1922-2	BH24-22 2ft	Total/NA	Solid	8021B	76918
885-1922-3	BH24-23 0ft	Total/NA	Solid	8021B	76918
885-1922-4	BH24-30 0ft	Total/NA	Solid	8021B	76918
885-1922-5	BH24-25 1ft	Total/NA	Solid	8021B	76918
885-1922-6	BH24-26 2ft	Total/NA	Solid	8021B	76918
MB 880-76918/5-A	Method Blank	Total/NA	Solid	8021B	76918
LCS 880-76918/1-A	Lab Control Sample	Total/NA	Solid	8021B	76918
LCSD 880-76918/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	76918

Prep Batch: 76918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1922-1	BH24-21 2ft	Total/NA	Solid	5035	
885-1922-2	BH24-22 2ft	Total/NA	Solid	5035	
885-1922-3	BH24-23 0ft	Total/NA	Solid	5035	
885-1922-4	BH24-30 0ft	Total/NA	Solid	5035	
885-1922-5	BH24-25 1ft	Total/NA	Solid	5035	
885-1922-6	BH24-26 2ft	Total/NA	Solid	5035	
MB 880-76918/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-76918/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-76918/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

GC Semi VOA

Analysis Batch: 76887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1922-1	BH24-21 2ft	Total/NA	Solid	8015B NM	76919
885-1922-2	BH24-22 2ft	Total/NA	Solid	8015B NM	76919
885-1922-3	BH24-23 0ft	Total/NA	Solid	8015B NM	76919
885-1922-4	BH24-30 0ft	Total/NA	Solid	8015B NM	76919
885-1922-5	BH24-25 1ft	Total/NA	Solid	8015B NM	76919
885-1922-6	BH24-26 2ft	Total/NA	Solid	8015B NM	76919
MB 880-76919/1-A	Method Blank	Total/NA	Solid	8015B NM	76919
LCS 880-76919/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	76919
LCSD 880-76919/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	76919

Prep Batch: 76919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1922-1	BH24-21 2ft	Total/NA	Solid	8015NM Prep	
885-1922-2	BH24-22 2ft	Total/NA	Solid	8015NM Prep	
885-1922-3	BH24-23 0ft	Total/NA	Solid	8015NM Prep	
885-1922-4	BH24-30 0ft	Total/NA	Solid	8015NM Prep	
885-1922-5	BH24-25 1ft	Total/NA	Solid	8015NM Prep	
885-1922-6	BH24-26 2ft	Total/NA	Solid	8015NM Prep	
MB 880-76919/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-76919/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-76919/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Vertex
Job ID: 885-1922-1
Project/Site: PLU 25 Brushy Draw West

HPLC/IC

Leach Batch: 77127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1922-1	BH24-21 2ft	Soluble	Solid	DI Leach	
885-1922-2	BH24-22 2ft	Soluble	Solid	DI Leach	
885-1922-3	BH24-23 0ft	Soluble	Solid	DI Leach	
885-1922-4	BH24-30 0ft	Soluble	Solid	DI Leach	
885-1922-5	BH24-25 1ft	Soluble	Solid	DI Leach	
885-1922-6	BH24-26 2ft	Soluble	Solid	DI Leach	
MB 880-77127/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-77127/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-77127/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 77142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1922-1	BH24-21 2ft	Soluble	Solid	300.0	77127
885-1922-2	BH24-22 2ft	Soluble	Solid	300.0	77127
885-1922-3	BH24-23 0ft	Soluble	Solid	300.0	77127
885-1922-4	BH24-30 0ft	Soluble	Solid	300.0	77127
885-1922-5	BH24-25 1ft	Soluble	Solid	300.0	77127
885-1922-6	BH24-26 2ft	Soluble	Solid	300.0	77127
MB 880-77127/1-A	Method Blank	Soluble	Solid	300.0	77127
LCS 880-77127/2-A	Lab Control Sample	Soluble	Solid	300.0	77127
LCSD 880-77127/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	77127

Lab Chronicle

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-1922-1

Client Sample ID: BH24-21 2ft
Date Collected: 03/22/24 10:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76918	EL	EET MID	03/29/24 12:05
Total/NA	Analysis	8021B		1	76894	MNR	EET MID	03/29/24 16:01
Total/NA	Prep	8015NM Prep			76919	EL	EET MID	03/29/24 12:09
Total/NA	Analysis	8015B NM		1	76887	SM	EET MID	03/29/24 13:47
Soluble	Leach	DI Leach			77127	SA	EET MID	04/02/24 13:45
Soluble	Analysis	300.0		1	77142	SMC	EET MID	04/02/24 18:55

Client Sample ID: BH24-22 2ft
Date Collected: 03/22/24 10:30
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76918	EL	EET MID	03/29/24 12:05
Total/NA	Analysis	8021B		1	76894	MNR	EET MID	03/29/24 16:21
Total/NA	Prep	8015NM Prep			76919	EL	EET MID	03/29/24 12:09
Total/NA	Analysis	8015B NM		1	76887	SM	EET MID	03/29/24 14:08
Soluble	Leach	DI Leach			77127	SA	EET MID	04/02/24 13:45
Soluble	Analysis	300.0		1	77142	SMC	EET MID	04/02/24 19:01

Client Sample ID: BH24-23 0ft
Date Collected: 03/22/24 11:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76918	EL	EET MID	03/29/24 12:05
Total/NA	Analysis	8021B		1	76894	MNR	EET MID	03/29/24 17:45
Total/NA	Prep	8015NM Prep			76919	EL	EET MID	03/29/24 12:09
Total/NA	Analysis	8015B NM		1	76887	SM	EET MID	03/29/24 14:30
Soluble	Leach	DI Leach			77127	SA	EET MID	04/02/24 13:45
Soluble	Analysis	300.0		1	77142	SMC	EET MID	04/02/24 19:20

Client Sample ID: BH24-30 0ft
Date Collected: 03/22/24 14:00
Date Received: 03/28/24 08:40

Lab Sample ID: 885-1922-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76918	EL	EET MID	03/29/24 12:05
Total/NA	Analysis	8021B		1	76894	MNR	EET MID	03/29/24 18:06
Total/NA	Prep	8015NM Prep			76919	EL	EET MID	03/29/24 12:09
Total/NA	Analysis	8015B NM		1	76887	SM	EET MID	03/29/24 14:52
Soluble	Leach	DI Leach			77127	SA	EET MID	04/02/24 13:45
Soluble	Analysis	300.0		1	77142	SMC	EET MID	04/02/24 19:26

Lab Chronicle

Client: Vertex
Job ID: 885-1922-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-25 1ft
Lab Sample ID: 885-1922-5
Date Collected: 03/22/24 11:00
Matrix: Solid
Date Received: 03/28/24 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76918	EL	EET MID	03/29/24 12:05
Total/NA	Analysis	8021B		1	76894	MNR	EET MID	03/29/24 18:26
Total/NA	Prep	8015NM Prep			76919	EL	EET MID	03/29/24 12:09
Total/NA	Analysis	8015B NM		1	76887	SM	EET MID	03/29/24 15:14
Soluble	Leach	DI Leach			77127	SA	EET MID	04/02/24 13:45
Soluble	Analysis	300.0		1	77142	SMC	EET MID	04/02/24 19:32

Client Sample ID: BH24-26 2ft
Lab Sample ID: 885-1922-6
Date Collected: 03/22/24 12:00
Matrix: Solid
Date Received: 03/28/24 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76918	EL	EET MID	03/29/24 12:05
Total/NA	Analysis	8021B		1	76894	MNR	EET MID	03/29/24 18:46
Total/NA	Prep	8015NM Prep			76919	EL	EET MID	03/29/24 12:09
Total/NA	Analysis	8015B NM		1	76887	SM	EET MID	03/29/24 15:35
Soluble	Leach	DI Leach			77127	SA	EET MID	04/02/24 13:45
Soluble	Analysis	300.0		1	77142	SMC	EET MID	04/02/24 19:39

Laboratory References:
EET MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Vertex Job ID: 885-1922-1
Project/Site: PLU 25 Brushy Draw West

Laboratory: Eurofins Midland

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24

Chain-of-Custody Record

Client: Vertex (XTO)

Mailing Address: On File

Phone #: On File

email or Fax#: Scartter@vertex.ca

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

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

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: PLU 25 Brushy Draw West

Project #: 24E-00670

Project Manager: Sally Carttar

Sampler: Wyatt Wadleigh
On Ice: ☒ Yes ☐ No 409
# of Coolers: 1
Cooler Temp (including CF): 3.8 - 0.1 = 3.7 °C

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

885-1922 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
03/22/24	10:00	Soil	BH24-21 2ft	1, 4oz jar		-1	X	X					X			
03/22/24	10:30	Soil	BH24-22 2ft	1, 4oz jar		-2	X	X					X			
03/22/24	11:00	Soil	BH24-23 0ft	1, 4oz jar		-3	X	X					X			
03/22/24	14:00	Soil	BH24-30 0ft	1, 4oz jar		-4	X	X					X			
03/22/24	11:00	Soil	BH24-25 1ft	1, 4oz jar		-5	X	X					X			
03/22/24	12:00	Soil	BH24-26 2ft	1, 4oz jar		-6	X	X					X			

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3/27/24	930	Wyatt Wadleigh			3/27/24	930
3/27/24	1900			courier	3/28/24	8:45

Remarks: Please CC wwadleigh@vertex.ca
Cost center Number: 2191851001

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-1922-1

Login Number: 1922 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Lowman, Nick

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-1922-1

Login Number: 1922
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 03/29/24 10:53 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carter
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 4/9/2024 4:01:11 PM

JOB DESCRIPTION

PLU 25 Brushy Draw West

JOB NUMBER

885-2016-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

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4/9/2024 4:01:11 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Laboratory Job ID: 885-2016-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-2016-1
Project/Site: PLU 25 Brushy Draw West

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-2016-1
Project: PLU 25 Brushy Draw West

Job ID: 885-2016-1 Eurofins Albuquerque

Job Narrative
885-2016-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The sample was received on 3/29/2024 7:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.3°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-2722 recovered above the upper control limit for Di-n-octyl phthalate (Surr). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Job ID: 885-2016-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-30 2ft
Lab Sample ID: 885-2016-1
Date Collected: 03/26/24 10:30
Matrix: Solid
Date Received: 03/29/24 07:55

Method: SW846 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		03/29/24 15:54	04/03/24 08:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*15 - 244*	*03/29/24 15:54*	*04/03/24 08:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		03/29/24 15:54	04/03/24 08:12	1
Ethylbenzene	ND		0.050		mg/Kg		03/29/24 15:54	04/03/24 08:12	1
Toluene	ND		0.050		mg/Kg		03/29/24 15:54	04/03/24 08:12	1
Xylenes, Total	ND		0.10		mg/Kg		03/29/24 15:54	04/03/24 08:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*39 - 146*	*03/29/24 15:54*	*04/03/24 08:12*	*1*

Method: SW846 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		04/01/24 16:29	04/03/24 11:54	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		04/01/24 16:29	04/03/24 11:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*04/01/24 16:29*	*04/03/24 11:54*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		04/02/24 09:41	04/02/24 13:50	20

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-2016-1

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-2523/1-A
Matrix: Solid
Analysis Batch: 2726

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2523

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		03/29/24 15:54	04/02/24 23:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*15 - 244*	*03/29/24 15:54*	*04/02/24 23:51*	*1*

Lab Sample ID: LCS 885-2523/2-A
Matrix: Solid
Analysis Batch: 2726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2523

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	24.6		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*221*		*15 - 244*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-2518/1-A
Matrix: Solid
Analysis Batch: 2731

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2518

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		03/29/24 14:08	04/02/24 12:57	1
Ethylbenzene	ND		0.050		mg/Kg		03/29/24 14:08	04/02/24 12:57	1
Toluene	ND		0.050		mg/Kg		03/29/24 14:08	04/02/24 12:57	1
Xylenes, Total	ND		0.10		mg/Kg		03/29/24 14:08	04/02/24 12:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*39 - 146*	*03/29/24 14:08*	*04/02/24 12:57*	*1*

Lab Sample ID: MB 885-2523/1-A
Matrix: Solid
Analysis Batch: 2731

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2523

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		03/29/24 15:54	04/02/24 23:51	1
Ethylbenzene	ND		0.050		mg/Kg		03/29/24 15:54	04/02/24 23:51	1
Toluene	ND		0.050		mg/Kg		03/29/24 15:54	04/02/24 23:51	1
Xylenes, Total	ND		0.10		mg/Kg		03/29/24 15:54	04/02/24 23:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*39 - 146*	*03/29/24 15:54*	*04/02/24 23:51*	*1*

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-2016-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-2523/3-A
Matrix: Solid
Analysis Batch: 2731

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2523

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.932		mg/Kg		93	70 - 130		
Ethylbenzene			1.00	0.935		mg/Kg		93	70 - 130		
m,p-Xylene			2.00	1.89		mg/Kg		95	70 - 130		
o-Xylene			1.00	0.942		mg/Kg		94	70 - 130		
Toluene			1.00	0.968		mg/Kg		97	70 - 130		
Xylenes, Total			3.00	2.83		mg/Kg		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*39 - 146*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-2574/1-A
Matrix: Solid
Analysis Batch: 2722

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 2574

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		04/01/24 16:29	04/03/24 11:30	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		04/01/24 16:29	04/03/24 11:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*04/01/24 16:29*	*04/03/24 11:30*	*1*

Lab Sample ID: LCS 885-2574/2-A
Matrix: Solid
Analysis Batch: 2722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 2574

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	49.3		mg/Kg		99	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*128*		*62 - 134*

Lab Sample ID: 885-2016-1 MS
Matrix: Solid
Analysis Batch: 2722

Client Sample ID: BH24-30 2ft
Prep Type: Total/NA
Prep Batch: 2574

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		45.0	42.8		mg/Kg		95	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-2016-1

Method: 8015D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 885-2016-1 MSD — **Client Sample ID: BH24-30 2ft**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2722 — **Prep Batch: 2574**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		46.4	41.9		mg/Kg		90	44 - 136	2	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-2604/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2667 — **Prep Batch: 2604**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		04/02/24 09:41	04/02/24 10:37	1

Lab Sample ID: LCS 885-2604/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2667 — **Prep Batch: 2604**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.0		mg/Kg		93	90 - 110		

Lab Sample ID: 885-2016-1 MS — **Client Sample ID: BH24-30 2ft**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2667 — **Prep Batch: 2604**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	ND		29.7	84.7		mg/Kg		NC	50 - 150		

Lab Sample ID: 885-2016-1 MSD — **Client Sample ID: BH24-30 2ft**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 2667 — **Prep Batch: 2604**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	ND		29.8	83.1		mg/Kg		NC	50 - 150	2	20

QC Association Summary

Client: Vertex
Job ID: 885-2016-1
Project/Site: PLU 25 Brushy Draw West

GC VOA

Prep Batch: 2518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-2518/1-A	Method Blank	Total/NA	Solid	5030C	

Prep Batch: 2523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	5030C	
MB 885-2523/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-2523/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-2523/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 2726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	8015D	2523
MB 885-2523/1-A	Method Blank	Total/NA	Solid	8015D	2523
LCS 885-2523/2-A	Lab Control Sample	Total/NA	Solid	8015D	2523

Analysis Batch: 2731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	8021B	2523
MB 885-2518/1-A	Method Blank	Total/NA	Solid	8021B	2518
MB 885-2523/1-A	Method Blank	Total/NA	Solid	8021B	2523
LCS 885-2523/3-A	Lab Control Sample	Total/NA	Solid	8021B	2523

GC Semi VOA

Prep Batch: 2574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	SHAKE	
MB 885-2574/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-2574/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-2016-1 MS	BH24-30 2ft	Total/NA	Solid	SHAKE	
885-2016-1 MSD	BH24-30 2ft	Total/NA	Solid	SHAKE	

Analysis Batch: 2722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	8015D	2574
MB 885-2574/1-A	Method Blank	Total/NA	Solid	8015D	2574
LCS 885-2574/2-A	Lab Control Sample	Total/NA	Solid	8015D	2574
885-2016-1 MS	BH24-30 2ft	Total/NA	Solid	8015D	2574
885-2016-1 MSD	BH24-30 2ft	Total/NA	Solid	8015D	2574

HPLC/IC

Prep Batch: 2604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	300_Prep	
MB 885-2604/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-2604/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-2016-1 MS	BH24-30 2ft	Total/NA	Solid	300_Prep	
885-2016-1 MSD	BH24-30 2ft	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Job ID: 885-2016-1
Project/Site: PLU 25 Brushy Draw West

HPLC/IC

Analysis Batch: 2667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-2016-1	BH24-30 2ft	Total/NA	Solid	300.0	2604
MB 885-2604/1-A	Method Blank	Total/NA	Solid	300.0	2604
LCS 885-2604/2-A	Lab Control Sample	Total/NA	Solid	300.0	2604
885-2016-1 MS	BH24-30 2ft	Total/NA	Solid	300.0	2604
885-2016-1 MSD	BH24-30 2ft	Total/NA	Solid	300.0	2604

Lab Chronicle

Client: Vertex
Job ID: 885-2016-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-30 2ft
Lab Sample ID: 885-2016-1
Date Collected: 03/26/24 10:30
Matrix: Solid
Date Received: 03/29/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			2523	IMR	EET ALB	03/29/24 15:54
Total/NA	Analysis	8015D		1	2726	RA	EET ALB	04/03/24 08:12
Total/NA	Prep	5030C			2523	IMR	EET ALB	03/29/24 15:54
Total/NA	Analysis	8021B		1	2731	RA	EET ALB	04/03/24 08:12
Total/NA	Prep	SHAKE			2574	JU	EET ALB	04/01/24 16:29
Total/NA	Analysis	8015D		1	2722	JU	EET ALB	04/03/24 11:54
Total/NA	Prep	300_Prep			2604	JT	EET ALB	04/02/24 09:41
Total/NA	Analysis	300.0		20	2667	JT	EET ALB	04/02/24 13:50

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-2016-1
Project/Site: PLU 25 Brushy Draw West

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015D	5030C	Solid	Gasoline Range Organics [C6 - C10]
8015D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871
Tel. 505-345-3975 Fax 505-345-4107
885-2016 COC

Client: Vertex (XTO)

Mailing Address: On File

Phone #: On File

email or Fax#: Scartter@vertex.ca

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

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

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: PLU 25 Brushy Draw West

Project #: 24E-00670

Project Manager: Sally Carttar

Sampler: Wyatt Wadleigh
On Ice: ☒ Yes ☐ No
# of Coolers: 1 Mostx
Cooler Temp (including CF): 0.4-0.1=0.3

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)					
03/26/24	10:30	Soil	BH24-30 2ft	1, 4oz jar			X	X					X								

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
		Wyatt Wadleigh	[signature]		3/27/24	1030
3/27/24	1900	[signature]	[signature]	courier	3/29/24	755

Remarks: Please CC wwadleigh@vertex.ca
Cost center Number: 2191851001

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-2016-1

Login Number: 2016 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Dominguez, Desiree

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Ms. Sally Carttar
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 7/12/2024 10:24:37 AM

JOB DESCRIPTION

PLU 25 Brushy Draw West

JOB NUMBER

885-6878-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
7/12/2024 10:24:37 AM

Authorized for release by
Cheyenne Cason, Project Manager
cheyenne.cason@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Laboratory Job ID: 885-6878-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex Job ID: 885-6878-1
Project: PLU 25 Brushy Draw West

Job ID: 885-6878-1 Eurofins Albuquerque

Job Narrative
885-6878-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 6/26/2024 7:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.4°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-05 0.0'

Date Collected: 06/24/24 10:00
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		06/26/24 11:16	07/03/24 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*06/26/24 11:16*	*07/03/24 16:29*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/26/24 11:16	07/03/24 16:29	1
Ethylbenzene	ND		0.048		mg/Kg		06/26/24 11:16	07/03/24 16:29	1
Toluene	ND		0.048		mg/Kg		06/26/24 11:16	07/03/24 16:29	1
Xylenes, Total	ND		0.096		mg/Kg		06/26/24 11:16	07/03/24 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*06/26/24 11:16*	*07/03/24 16:29*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		06/26/24 13:39	06/27/24 07:11	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		06/26/24 13:39	06/27/24 07:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*122*		*62 - 134*	*06/26/24 13:39*	*06/27/24 07:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11000**		600		mg/Kg		06/27/24 10:14	06/28/24 22:13	200

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-07 0.0'

Date Collected: 06/24/24 10:05
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		06/26/24 11:16	07/03/24 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*06/26/24 11:16*	*07/03/24 16:53*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/26/24 11:16	07/03/24 16:53	1
Ethylbenzene	ND		0.049		mg/Kg		06/26/24 11:16	07/03/24 16:53	1
Toluene	ND		0.049		mg/Kg		06/26/24 11:16	07/03/24 16:53	1
Xylenes, Total	ND		0.098		mg/Kg		06/26/24 11:16	07/03/24 16:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/26/24 11:16*	*07/03/24 16:53*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.8		mg/Kg		06/26/24 13:39	06/27/24 07:23	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		06/26/24 13:39	06/27/24 07:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*06/26/24 13:39*	*06/27/24 07:23*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**370**		60		mg/Kg		06/27/24 10:14	06/27/24 22:57	20

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-07 1.5'

Date Collected: 06/24/24 10:20
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 11:16	07/03/24 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*06/26/24 11:16*	*07/03/24 17:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 11:16	07/03/24 17:17	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 11:16	07/03/24 17:17	1
Toluene	ND		0.050		mg/Kg		06/26/24 11:16	07/03/24 17:17	1
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 11:16	07/03/24 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*06/26/24 11:16*	*07/03/24 17:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.9		mg/Kg		06/26/24 13:39	06/27/24 07:36	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		06/26/24 13:39	06/27/24 07:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*06/26/24 13:39*	*06/27/24 07:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**95**		60		mg/Kg		06/27/24 10:14	06/27/24 23:10	20

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-09 0.0'

Date Collected: 06/24/24 10:25
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 11:16	07/03/24 18:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*06/26/24 11:16*	*07/03/24 18:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 11:16	07/03/24 18:04	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 11:16	07/03/24 18:04	1
Toluene	ND		0.050		mg/Kg		06/26/24 11:16	07/03/24 18:04	1
Xylenes, Total	ND		0.099		mg/Kg		06/26/24 11:16	07/03/24 18:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*48 - 145*	*06/26/24 11:16*	*07/03/24 18:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		06/26/24 13:39	06/27/24 07:48	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		06/26/24 13:39	06/27/24 07:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*	*06/26/24 13:39*	*06/27/24 07:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10000**		600		mg/Kg		06/27/24 10:14	06/28/24 22:52	200

Client Sample Results

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-10 0.0'
Lab Sample ID: 885-6878-5
Date Collected: 06/24/24 10:30
Matrix: Solid
Date Received: 06/26/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*06/26/24 15:02*	*06/28/24 14:15*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 14:15	0
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 14:15	0
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 14:15	0
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 15:02	06/28/24 14:15	0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*48 - 145*	*06/26/24 15:02*	*06/28/24 14:15*	*0*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**23**		9.7		mg/Kg		06/27/24 08:15	06/27/24 13:00	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		06/27/24 08:15	06/27/24 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*06/27/24 08:15*	*06/27/24 13:00*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**17000**		600		mg/Kg		06/27/24 10:14	06/28/24 23:04	200

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-11 0.0'

Date Collected: 06/24/24 10:35
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*06/26/24 15:02*	*06/28/24 15:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 15:21	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 15:21	1
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 15:21	1
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 15:02	06/28/24 15:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*06/26/24 15:02*	*06/28/24 15:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		06/27/24 08:15	06/27/24 13:12	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		06/27/24 08:15	06/27/24 13:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*06/27/24 08:15*	*06/27/24 13:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6700**		300		mg/Kg		06/27/24 10:14	06/28/24 23:17	100

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-11 1.5'

Date Collected: 06/24/24 10:45
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*06/26/24 15:02*	*06/28/24 16:27*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 16:27	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 16:27	1
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 16:27	1
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 15:02	06/28/24 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/26/24 15:02*	*06/28/24 16:27*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.8		mg/Kg		06/27/24 08:15	06/27/24 13:25	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		06/27/24 08:15	06/27/24 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*06/27/24 08:15*	*06/27/24 13:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**280**		59		mg/Kg		06/27/24 10:14	06/28/24 00:27	20

Client Sample Results

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-31 0.0'
Lab Sample ID: 885-6878-8
Date Collected: 06/24/24 10:50
Matrix: Solid
Date Received: 06/26/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*06/26/24 15:02*	*06/28/24 16:49*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 16:49	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 16:49	1
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 16:49	1
Xylenes, Total	ND		0.099		mg/Kg		06/26/24 15:02	06/28/24 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/26/24 15:02*	*06/28/24 16:49*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		06/27/24 08:15	06/27/24 13:38	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		06/27/24 08:15	06/27/24 13:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*06/27/24 08:15*	*06/27/24 13:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**180**		60		mg/Kg		06/27/24 10:14	06/28/24 00:40	20

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-32 0.0'

Date Collected: 06/24/24 10:55
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-9

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*06/26/24 15:02*	*06/28/24 17:33*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 17:33	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 17:33	1
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 17:33	1
Xylenes, Total	ND		0.099		mg/Kg		06/26/24 15:02	06/28/24 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*06/26/24 15:02*	*06/28/24 17:33*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		06/27/24 08:15	06/27/24 13:50	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		06/27/24 08:15	06/27/24 13:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*06/27/24 08:15*	*06/27/24 13:50*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**130**		60		mg/Kg		06/27/24 10:14	06/28/24 00:53	20

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-32 1.0'

Date Collected: 06/24/24 11:10
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-10

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		06/26/24 15:02	06/28/24 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*06/26/24 15:02*	*06/28/24 17:55*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		06/26/24 15:02	06/28/24 17:55	1
Ethylbenzene	ND		0.048		mg/Kg		06/26/24 15:02	06/28/24 17:55	1
Toluene	ND		0.048		mg/Kg		06/26/24 15:02	06/28/24 17:55	1
Xylenes, Total	ND		0.096		mg/Kg		06/26/24 15:02	06/28/24 17:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/26/24 15:02*	*06/28/24 17:55*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		06/27/24 08:15	06/27/24 14:03	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		06/27/24 08:15	06/27/24 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*100*		*62 - 134*	*06/27/24 08:15*	*06/27/24 14:03*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**60**		60		mg/Kg		06/27/24 15:29	06/27/24 23:53	20

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-33 0.0'

Date Collected: 06/24/24 11:15
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-11

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*06/26/24 15:02*	*06/28/24 18:17*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 18:17	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 18:17	1
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 18:17	1
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 15:02	06/28/24 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/26/24 15:02*	*06/28/24 18:17*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		06/27/24 08:15	06/27/24 14:15	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		06/27/24 08:15	06/27/24 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*06/27/24 08:15*	*06/27/24 14:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8300**		300		mg/Kg		06/27/24 15:29	07/01/24 17:31	100

Client Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Client Sample ID: BH24-33 2.0'

Date Collected: 06/24/24 11:30
Date Received: 06/26/24 07:50

Lab Sample ID: 885-6878-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		06/26/24 15:02	06/28/24 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*06/26/24 15:02*	*06/28/24 18:39*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 18:39	1
Ethylbenzene	ND		0.049		mg/Kg		06/26/24 15:02	06/28/24 18:39	1
Toluene	ND		0.049		mg/Kg		06/26/24 15:02	06/28/24 18:39	1
Xylenes, Total	ND		0.098		mg/Kg		06/26/24 15:02	06/28/24 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*06/26/24 15:02*	*06/28/24 18:39*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		06/27/24 08:15	06/27/24 14:28	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/27/24 08:15	06/27/24 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*06/27/24 08:15*	*06/27/24 14:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**620**		60		mg/Kg		06/27/24 15:29	06/28/24 00:43	20

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-7404/1-A
Matrix: Solid
Analysis Batch: 7896

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7404

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 11:16	07/03/24 14:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*06/26/24 11:16*	*07/03/24 14:55*	*1*

Lab Sample ID: LCS 885-7404/2-A
Matrix: Solid
Analysis Batch: 7896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7404

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	26.5		mg/Kg		106	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*209*	*S1+*	*35 - 166*

Lab Sample ID: MB 885-7434/1-A
Matrix: Solid
Analysis Batch: 7671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7434

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		06/26/24 15:02	06/28/24 08:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*06/26/24 15:02*	*06/28/24 08:42*	*1*

Lab Sample ID: LCS 885-7434/2-A
Matrix: Solid
Analysis Batch: 7671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7434

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	25.6		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*	*S1+*	*35 - 166*

Lab Sample ID: 885-6878-5 MS
Matrix: Solid
Analysis Batch: 7671

Client Sample ID: BH24-10 0.0'
Prep Type: Total/NA
Prep Batch: 7434

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	ND		25.0	26.9		mg/Kg		108	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: 885-6878-5 MS
Matrix: Solid
Analysis Batch: 7671

Client Sample ID: BH24-10 0.0'
Prep Type: Total/NA
Prep Batch: 7434

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*214*	*S1+*	*35 - 166*

Lab Sample ID: 885-6878-5 MSD
Matrix: Solid
Analysis Batch: 7671

Client Sample ID: BH24-10 0.0'
Prep Type: Total/NA
Prep Batch: 7434

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	ND		25.0	24.9		mg/Kg		100	70 - 130	8	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*213*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-7404/1-A
Matrix: Solid
Analysis Batch: 7897

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7404

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 11:16	07/03/24 14:55	1
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 11:16	07/03/24 14:55	1
Toluene	ND		0.050		mg/Kg		06/26/24 11:16	07/03/24 14:55	1
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 11:16	07/03/24 14:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*06/26/24 11:16*	*07/03/24 14:55*	*1*

Lab Sample ID: LCS 885-7404/3-A
Matrix: Solid
Analysis Batch: 7897

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7404

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.882		mg/Kg		88	70 - 130		
Ethylbenzene			1.00	0.850		mg/Kg		85	70 - 130		
m-Xylene & p-Xylene			2.00	1.73		mg/Kg		87	70 - 130		
o-Xylene			1.00	0.834		mg/Kg		83	70 - 130		
Toluene			1.00	0.845		mg/Kg		85	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*

Lab Sample ID: MB 885-7434/1-A
Matrix: Solid
Analysis Batch: 7673

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7434

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		06/26/24 15:02	06/28/24 08:42	1

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-7434/1-A
Matrix: Solid
Analysis Batch: 7673

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7434

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 08:42	1
Toluene	ND		0.050		mg/Kg		06/26/24 15:02	06/28/24 08:42	1
Xylenes, Total	ND		0.10		mg/Kg		06/26/24 15:02	06/28/24 08:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*06/26/24 15:02*	*06/28/24 08:42*	*1*

Lab Sample ID: LCS 885-7434/3-A
Matrix: Solid
Analysis Batch: 7673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7434

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.895		mg/Kg		90	70 - 130		
Ethylbenzene			1.00	0.908		mg/Kg		91	70 - 130		
m-Xylene & p-Xylene			2.00	1.83		mg/Kg		91	70 - 130		
o-Xylene			1.00	0.918		mg/Kg		92	70 - 130		
Toluene			1.00	0.897		mg/Kg		90	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*

Lab Sample ID: 885-6878-6 MS
Matrix: Solid
Analysis Batch: 7673

Client Sample ID: BH24-11 0.0'
Prep Type: Total/NA
Prep Batch: 7434

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.999	0.922		mg/Kg		92	70 - 130		
Ethylbenzene	ND		0.999	0.949		mg/Kg		95	70 - 130		
m-Xylene & p-Xylene	ND		2.00	1.90		mg/Kg		95	70 - 130		
o-Xylene	ND		0.999	0.973		mg/Kg		97	70 - 130		
Toluene	ND		0.999	0.935		mg/Kg		94	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: 885-6878-6 MSD
Matrix: Solid
Analysis Batch: 7673

Client Sample ID: BH24-11 0.0'
Prep Type: Total/NA
Prep Batch: 7434

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.991	0.885		mg/Kg		89	70 - 130	4	20
Ethylbenzene	ND		0.991	0.927		mg/Kg		93	70 - 130	2	20
m-Xylene & p-Xylene	ND		1.98	1.86		mg/Kg		94	70 - 130	2	20
o-Xylene	ND		0.991	0.930		mg/Kg		94	70 - 130	5	20
Toluene	ND		0.991	0.900		mg/Kg		91	70 - 130	4	20

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 885-6878-6 MSD
Matrix: Solid
Analysis Batch: 7673

Client Sample ID: BH24-11 0.0'
Prep Type: Total/NA
Prep Batch: 7434

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-7423/1-A
Matrix: Solid
Analysis Batch: 7443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7423

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		06/26/24 13:39	06/27/24 04:04	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/26/24 13:39	06/27/24 04:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*06/26/24 13:39*	*06/27/24 04:04*	*1*

Lab Sample ID: LCS 885-7423/2-A
Matrix: Solid
Analysis Batch: 7443

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7423

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	44.2		mg/Kg		88	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*

Lab Sample ID: MB 885-7454/1-A
Matrix: Solid
Analysis Batch: 7443

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7454

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		06/27/24 08:15	06/27/24 12:35	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		06/27/24 08:15	06/27/24 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*06/27/24 08:15*	*06/27/24 12:35*	*1*

Lab Sample ID: LCS 885-7454/2-A
Matrix: Solid
Analysis Batch: 7443

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7454

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	38.0		mg/Kg		76	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-7485/1-A
Matrix: Solid
Analysis Batch: 7495

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7485

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		06/27/24 10:14	06/27/24 18:06	1

Lab Sample ID: LCS 885-7485/2-A
Matrix: Solid
Analysis Batch: 7495

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7485

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.3		mg/Kg		94	90 - 110		

Lab Sample ID: MB 885-7495/34
Matrix: Solid
Analysis Batch: 7495

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/Kg			06/28/24 01:18	1

Lab Sample ID: MRL 885-7495/33
Matrix: Solid
Analysis Batch: 7495

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.547		mg/L		109	50 - 150		

Lab Sample ID: MB 885-7524/1-A
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7524

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		06/27/24 15:29	06/27/24 23:29	1

Lab Sample ID: LCS 885-7524/2-A
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7524

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.0		mg/Kg		93	90 - 110		

Lab Sample ID: 885-6878-10 MS
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: BH24-32 1.0'
Prep Type: Total/NA
Prep Batch: 7524

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	60		30.1	69.7		mg/Kg		NC	50 - 150		

Lab Sample ID: 885-6878-10 MSD
Matrix: Solid
Analysis Batch: 7586

Client Sample ID: BH24-32 1.0'
Prep Type: Total/NA
Prep Batch: 7524

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	60		30.1	74.5		mg/Kg		NC	50 - 150	7	20

QC Sample Results

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-7733/4
Matrix: Solid
Analysis Batch: 7733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/Kg			07/01/24 13:14	1

Lab Sample ID: MRL 885-7733/3
Matrix: Solid
Analysis Batch: 7733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.557		mg/L		111	50 - 150		

QC Association Summary

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

GC VOA

Prep Batch: 7404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	5030C	
885-6878-2	BH24-07 0.0'	Total/NA	Solid	5030C	
885-6878-3	BH24-07 1.5'	Total/NA	Solid	5030C	
885-6878-4	BH24-09 0.0'	Total/NA	Solid	5030C	
MB 885-7404/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7404/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7404/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 7434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-5	BH24-10 0.0'	Total/NA	Solid	5030C	
885-6878-6	BH24-11 0.0'	Total/NA	Solid	5030C	
885-6878-7	BH24-11 1.5'	Total/NA	Solid	5030C	
885-6878-8	BH24-31 0.0'	Total/NA	Solid	5030C	
885-6878-9	BH24-32 0.0'	Total/NA	Solid	5030C	
885-6878-10	BH24-32 1.0'	Total/NA	Solid	5030C	
885-6878-11	BH24-33 0.0'	Total/NA	Solid	5030C	
885-6878-12	BH24-33 2.0'	Total/NA	Solid	5030C	
MB 885-7434/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7434/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7434/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-6878-5 MS	BH24-10 0.0'	Total/NA	Solid	5030C	
885-6878-5 MSD	BH24-10 0.0'	Total/NA	Solid	5030C	
885-6878-6 MS	BH24-11 0.0'	Total/NA	Solid	5030C	
885-6878-6 MSD	BH24-11 0.0'	Total/NA	Solid	5030C	

Analysis Batch: 7671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-5	BH24-10 0.0'	Total/NA	Solid	8015M/D	7434
885-6878-6	BH24-11 0.0'	Total/NA	Solid	8015M/D	7434
885-6878-7	BH24-11 1.5'	Total/NA	Solid	8015M/D	7434
885-6878-8	BH24-31 0.0'	Total/NA	Solid	8015M/D	7434
885-6878-9	BH24-32 0.0'	Total/NA	Solid	8015M/D	7434
885-6878-10	BH24-32 1.0'	Total/NA	Solid	8015M/D	7434
885-6878-11	BH24-33 0.0'	Total/NA	Solid	8015M/D	7434
885-6878-12	BH24-33 2.0'	Total/NA	Solid	8015M/D	7434
MB 885-7434/1-A	Method Blank	Total/NA	Solid	8015M/D	7434
LCS 885-7434/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7434
885-6878-5 MS	BH24-10 0.0'	Total/NA	Solid	8015M/D	7434
885-6878-5 MSD	BH24-10 0.0'	Total/NA	Solid	8015M/D	7434

Analysis Batch: 7673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-5	BH24-10 0.0'	Total/NA	Solid	8021B	7434
885-6878-6	BH24-11 0.0'	Total/NA	Solid	8021B	7434
885-6878-7	BH24-11 1.5'	Total/NA	Solid	8021B	7434
885-6878-8	BH24-31 0.0'	Total/NA	Solid	8021B	7434
885-6878-9	BH24-32 0.0'	Total/NA	Solid	8021B	7434
885-6878-10	BH24-32 1.0'	Total/NA	Solid	8021B	7434
885-6878-11	BH24-33 0.0'	Total/NA	Solid	8021B	7434
885-6878-12	BH24-33 2.0'	Total/NA	Solid	8021B	7434

QC Association Summary

Client: Vertex
Project/Site: PLU 25 Brushy Draw West

Job ID: 885-6878-1

GC VOA (Continued)

Analysis Batch: 7673 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-7434/1-A	Method Blank	Total/NA	Solid	8021B	7434
LCS 885-7434/3-A	Lab Control Sample	Total/NA	Solid	8021B	7434
885-6878-6 MS	BH24-11 0.0'	Total/NA	Solid	8021B	7434
885-6878-6 MSD	BH24-11 0.0'	Total/NA	Solid	8021B	7434

Analysis Batch: 7896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	8015M/D	7404
885-6878-2	BH24-07 0.0'	Total/NA	Solid	8015M/D	7404
885-6878-3	BH24-07 1.5'	Total/NA	Solid	8015M/D	7404
885-6878-4	BH24-09 0.0'	Total/NA	Solid	8015M/D	7404
MB 885-7404/1-A	Method Blank	Total/NA	Solid	8015M/D	7404
LCS 885-7404/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7404

Analysis Batch: 7897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	8021B	7404
885-6878-2	BH24-07 0.0'	Total/NA	Solid	8021B	7404
885-6878-3	BH24-07 1.5'	Total/NA	Solid	8021B	7404
885-6878-4	BH24-09 0.0'	Total/NA	Solid	8021B	7404
MB 885-7404/1-A	Method Blank	Total/NA	Solid	8021B	7404
LCS 885-7404/3-A	Lab Control Sample	Total/NA	Solid	8021B	7404

GC Semi VOA

Prep Batch: 7423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	SHAKE	
885-6878-2	BH24-07 0.0'	Total/NA	Solid	SHAKE	
885-6878-3	BH24-07 1.5'	Total/NA	Solid	SHAKE	
885-6878-4	BH24-09 0.0'	Total/NA	Solid	SHAKE	
MB 885-7423/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-7423/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 7443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	8015M/D	7423
885-6878-2	BH24-07 0.0'	Total/NA	Solid	8015M/D	7423
885-6878-3	BH24-07 1.5'	Total/NA	Solid	8015M/D	7423
885-6878-4	BH24-09 0.0'	Total/NA	Solid	8015M/D	7423
885-6878-5	BH24-10 0.0'	Total/NA	Solid	8015M/D	7454
885-6878-6	BH24-11 0.0'	Total/NA	Solid	8015M/D	7454
885-6878-7	BH24-11 1.5'	Total/NA	Solid	8015M/D	7454
885-6878-8	BH24-31 0.0'	Total/NA	Solid	8015M/D	7454
885-6878-9	BH24-32 0.0'	Total/NA	Solid	8015M/D	7454
885-6878-10	BH24-32 1.0'	Total/NA	Solid	8015M/D	7454
885-6878-11	BH24-33 0.0'	Total/NA	Solid	8015M/D	7454
885-6878-12	BH24-33 2.0'	Total/NA	Solid	8015M/D	7454
MB 885-7423/1-A	Method Blank	Total/NA	Solid	8015M/D	7423
MB 885-7454/1-A	Method Blank	Total/NA	Solid	8015M/D	7454
LCS 885-7423/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7423

QC Association Summary

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

GC Semi VOA (Continued)

Analysis Batch: 7443 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-7454/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7454

Prep Batch: 7454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-5	BH24-10 0.0'	Total/NA	Solid	SHAKE	
885-6878-6	BH24-11 0.0'	Total/NA	Solid	SHAKE	
885-6878-7	BH24-11 1.5'	Total/NA	Solid	SHAKE	
885-6878-8	BH24-31 0.0'	Total/NA	Solid	SHAKE	
885-6878-9	BH24-32 0.0'	Total/NA	Solid	SHAKE	
885-6878-10	BH24-32 1.0'	Total/NA	Solid	SHAKE	
885-6878-11	BH24-33 0.0'	Total/NA	Solid	SHAKE	
885-6878-12	BH24-33 2.0'	Total/NA	Solid	SHAKE	
MB 885-7454/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-7454/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

HPLC/IC

Prep Batch: 7485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	300_Prep	
885-6878-2	BH24-07 0.0'	Total/NA	Solid	300_Prep	
885-6878-3	BH24-07 1.5'	Total/NA	Solid	300_Prep	
885-6878-4	BH24-09 0.0'	Total/NA	Solid	300_Prep	
885-6878-5	BH24-10 0.0'	Total/NA	Solid	300_Prep	
885-6878-6	BH24-11 0.0'	Total/NA	Solid	300_Prep	
885-6878-7	BH24-11 1.5'	Total/NA	Solid	300_Prep	
885-6878-8	BH24-31 0.0'	Total/NA	Solid	300_Prep	
885-6878-9	BH24-32 0.0'	Total/NA	Solid	300_Prep	
MB 885-7485/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-7485/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 7495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-2	BH24-07 0.0'	Total/NA	Solid	300.0	7485
885-6878-3	BH24-07 1.5'	Total/NA	Solid	300.0	7485
885-6878-7	BH24-11 1.5'	Total/NA	Solid	300.0	7485
885-6878-8	BH24-31 0.0'	Total/NA	Solid	300.0	7485
885-6878-9	BH24-32 0.0'	Total/NA	Solid	300.0	7485
MB 885-7485/1-A	Method Blank	Total/NA	Solid	300.0	7485
MB 885-7495/34	Method Blank	Total/NA	Solid	300.0	
LCS 885-7485/2-A	Lab Control Sample	Total/NA	Solid	300.0	7485
MRL 885-7495/33	Lab Control Sample	Total/NA	Solid	300.0	

Prep Batch: 7524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-10	BH24-32 1.0'	Total/NA	Solid	300_Prep	
885-6878-11	BH24-33 0.0'	Total/NA	Solid	300_Prep	
885-6878-12	BH24-33 2.0'	Total/NA	Solid	300_Prep	
MB 885-7524/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-7524/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-6878-10 MS	BH24-32 1.0'	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

HPLC/IC (Continued)

Prep Batch: 7524 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-10 MSD	BH24-32 1.0'	Total/NA	Solid	300_Prep	

Analysis Batch: 7586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-10	BH24-32 1.0'	Total/NA	Solid	300.0	7524
885-6878-12	BH24-33 2.0'	Total/NA	Solid	300.0	7524
MB 885-7524/1-A	Method Blank	Total/NA	Solid	300.0	7524
LCS 885-7524/2-A	Lab Control Sample	Total/NA	Solid	300.0	7524
885-6878-10 MS	BH24-32 1.0'	Total/NA	Solid	300.0	7524
885-6878-10 MSD	BH24-32 1.0'	Total/NA	Solid	300.0	7524

Analysis Batch: 7597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-1	BH24-05 0.0'	Total/NA	Solid	300.0	7485
885-6878-4	BH24-09 0.0'	Total/NA	Solid	300.0	7485
885-6878-5	BH24-10 0.0'	Total/NA	Solid	300.0	7485
885-6878-6	BH24-11 0.0'	Total/NA	Solid	300.0	7485

Analysis Batch: 7733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-6878-11	BH24-33 0.0'	Total/NA	Solid	300.0	7524
MB 885-7733/4	Method Blank	Total/NA	Solid	300.0	
MRL 885-7733/3	Lab Control Sample	Total/NA	Solid	300.0	

Lab Chronicle

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-05 0.0'
Lab Sample ID: 885-6878-1
Date Collected: 06/24/24 10:00
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8015M/D		1	7896	JP	EET ALB	07/03/24 16:29
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8021B		1	7897	JP	EET ALB	07/03/24 16:29
Total/NA	Prep	SHAKE			7423	KR	EET ALB	06/26/24 13:39
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 07:11
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		200	7597	RC	EET ALB	06/28/24 22:13

Client Sample ID: BH24-07 0.0'
Lab Sample ID: 885-6878-2
Date Collected: 06/24/24 10:05
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8015M/D		1	7896	JP	EET ALB	07/03/24 16:53
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8021B		1	7897	JP	EET ALB	07/03/24 16:53
Total/NA	Prep	SHAKE			7423	KR	EET ALB	06/26/24 13:39
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 07:23
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		20	7495	RC	EET ALB	06/27/24 22:57

Client Sample ID: BH24-07 1.5'
Lab Sample ID: 885-6878-3
Date Collected: 06/24/24 10:20
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8015M/D		1	7896	JP	EET ALB	07/03/24 17:17
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8021B		1	7897	JP	EET ALB	07/03/24 17:17
Total/NA	Prep	SHAKE			7423	KR	EET ALB	06/26/24 13:39
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 07:36
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		20	7495	RC	EET ALB	06/27/24 23:10

Client Sample ID: BH24-09 0.0'
Lab Sample ID: 885-6878-4
Date Collected: 06/24/24 10:25
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8015M/D		1	7896	JP	EET ALB	07/03/24 18:04

Lab Chronicle

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-09 0.0'
Lab Sample ID: 885-6878-4
Date Collected: 06/24/24 10:25
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7404	AT	EET ALB	06/26/24 11:16
Total/NA	Analysis	8021B		1	7897	JP	EET ALB	07/03/24 18:04
Total/NA	Prep	SHAKE			7423	KR	EET ALB	06/26/24 13:39
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 07:48
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		200	7597	RC	EET ALB	06/28/24 22:52

Client Sample ID: BH24-10 0.0'
Lab Sample ID: 885-6878-5
Date Collected: 06/24/24 10:30
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 14:15
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		0	7673	RA	EET ALB	06/28/24 14:15
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 13:00
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		200	7597	RC	EET ALB	06/28/24 23:04

Client Sample ID: BH24-11 0.0'
Lab Sample ID: 885-6878-6
Date Collected: 06/24/24 10:35
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 15:21
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 15:21
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 13:12
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		100	7597	RC	EET ALB	06/28/24 23:17

Client Sample ID: BH24-11 1.5'
Lab Sample ID: 885-6878-7
Date Collected: 06/24/24 10:45
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 16:27
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 16:27

Lab Chronicle

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-11 1.5'
Lab Sample ID: 885-6878-7
Date Collected: 06/24/24 10:45
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 13:25
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		20	7495	RC	EET ALB	06/28/24 00:27

Client Sample ID: BH24-31 0.0'
Lab Sample ID: 885-6878-8
Date Collected: 06/24/24 10:50
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 16:49
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 16:49
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 13:38
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		20	7495	RC	EET ALB	06/28/24 00:40

Client Sample ID: BH24-32 0.0'
Lab Sample ID: 885-6878-9
Date Collected: 06/24/24 10:55
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 17:33
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 17:33
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 13:50
Total/NA	Prep	300_Prep			7485	RC	EET ALB	06/27/24 10:14
Total/NA	Analysis	300.0		20	7495	RC	EET ALB	06/28/24 00:53

Client Sample ID: BH24-32 1.0'
Lab Sample ID: 885-6878-10
Date Collected: 06/24/24 11:10
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 17:55
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 17:55
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 14:03

Lab Chronicle

Client: Vertex
Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Client Sample ID: BH24-32 1.0'
Lab Sample ID: 885-6878-10
Date Collected: 06/24/24 11:10
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			7524	ES	EET ALB	06/27/24 15:29
Total/NA	Analysis	300.0		20	7586	JT	EET ALB	06/27/24 23:53

Client Sample ID: BH24-33 0.0'
Lab Sample ID: 885-6878-11
Date Collected: 06/24/24 11:15
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 18:17
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 18:17
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 14:15
Total/NA	Prep	300_Prep			7524	ES	EET ALB	06/27/24 15:29
Total/NA	Analysis	300.0		100	7733	JT	EET ALB	07/01/24 17:31

Client Sample ID: BH24-33 2.0'
Lab Sample ID: 885-6878-12
Date Collected: 06/24/24 11:30
Matrix: Solid
Date Received: 06/26/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8015M/D		1	7671	RA	EET ALB	06/28/24 18:39
Total/NA	Prep	5030C			7434	AT	EET ALB	06/26/24 15:02
Total/NA	Analysis	8021B		1	7673	RA	EET ALB	06/28/24 18:39
Total/NA	Prep	SHAKE			7454	KR	EET ALB	06/27/24 08:15
Total/NA	Analysis	8015M/D		1	7443	DH	EET ALB	06/27/24 14:28
Total/NA	Prep	300_Prep			7524	ES	EET ALB	06/27/24 15:29
Total/NA	Analysis	300.0		20	7586	JT	EET ALB	06/28/24 00:43

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-6878-1
Project/Site: PLU 25 Brushy Draw West

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics (GRO)-C6-C10
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Vertex (XTO Energy)

Mailing Address: On file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
5-day
☐ Standard ☑ Rush

Project Name: PLU 25 Brushy Draw West

Project #: 24E-00670

Project Manager: Sally Carttar

Sampler: AL

On Ice: ☑ Yes ☐ No Yes

# of Coolers: 1

Cooler Temp(including CF): 0.4=0=0.4 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107
885-6878 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6-24-24	1000	Soil	BH24-05 0.0'	4 oz	ICE	1										
	1005		BH24-07 0.0'			2										
	1020		BH24-07 1.5'			3										
	1025		BH24-09 0.0'			4										
	1030		BH24-10 0.0'			5										
	1035		BH24-11 0.0'			6										
	1045		BH24-11 1.5'			7										
	1050		BH24-31 0.0'			8										
	1055		BH24-32 0.0'			9										
	1110		BH24-32 1.0'			10										
	1115		BH24-33 0.0'			11										
↓	1130	↓	BH24-33 2.0'	↓	↓	12	↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
					6/25/24	905
6/25/24	1900			Courier	6/26/24	7:55

Remarks: Bill direct to XTO Energy
NAPP2403657069
Cost center # 219185 1001
cc: scarttar@vertex.ca; ALvdvik@vertex.ca

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-6878-1

Login Number: 6878 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

ATTACHMENT 5

ATTACHMENT 6

Green, Garrett J

From: Green, Garrett J
Sent: Tuesday, January 23, 2024 3:21 PM
To: 'ocd.enviro (ocd.enviro@emnrd.nm.gov)'
Cc: Ruth, Amy; Collins, Melanie; Green, Garrett J
Subject: XTO 24 Hour Notification PLU 25 Brushy Draw West 1/22/2024

All,

This is notification of a release greater than 25 bbls that occurred at PLU 25 Brushy Draw West on 1/22/2024. All standing fluids have been recovered. Details will be provided with an NOR and C-141 submission.

GPS:32.1.450,-103.83919

Thanks,

Garrett Green
Environmental Advisor
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

Location:	PLU 25 Brushy Draw West	
Spill Date:	1/22/2024	
Area 1		
Approximate Area =	5247.10	sq. ft.
Average Saturation (or depth) of spill =	2.25	inches
Average Porosity Factor =	0.03	
VOLUME OF LEAK		
Total Crude Oil =		bbls
Total Produced Water =	40.26	bbls

TOTAL VOLUME OF LEAK		
Total Crude Oil =		**bbls**
Total Produced Water =	**40.26**	**bbls**
TOTAL VOLUME RECOVERED		
Total Crude Oil =		**bbls**
Total Produced Water =	**35.00**	**bbls**

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 311511
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2403657069**
Incident Name	**NAPP2403657069 PLU 25 BRUSHY DRAW WEST @ 0**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Received**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	PLU 25 Brushy Draw West
Date Release Discovered	01/22/2024
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: Corrosion | Flow Line - Production | Produced Water | Released: 40 BBL | Recovered: 35 BBL | Lost: 5 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: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 311511
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**

With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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

I hereby agree and sign off to the above statement	Name: Garrett Green Title: SHE Coordinator Email: garrett.green@exxonmobil.com Date: 02/05/2024

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 311511
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

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)	*Not answered.*
What method was used to determine the depth to ground water	*Not answered.*
Did this release impact groundwater or surface water	*Not answered.*
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	*Not answered.*
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	*Not answered.*
An occupied permanent residence, school, hospital, institution, or church	*Not answered.*
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	*Not answered.*
Any other fresh water well or spring	*Not answered.*
Incorporated municipal boundaries or a defined municipal fresh water well field	*Not answered.*
A wetland	*Not answered.*
A subsurface mine	*Not answered.*
An (non-karst) unstable area	*Not answered.*
Categorize the risk of this well / site being in a karst geology	*Not answered.*
A 100-year floodplain	*Not answered.*
Did the release impact areas not on an exploration, development, production, or storage site	*Not answered.*

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	No
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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CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 311511
	Action Type: [C-141] Initial C-141 (C-141-v-Initial)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	2/6/2024

XTO - Extension Request - PLU 25 Brushy Draw West

Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>

Thu 4/18/2024 9:22 AM

To:Romero, Alan <alan.romero1@exxonmobil.com>
Cc:Ruth, Amy <amy.ruth@exxonmobil.com>;Garcia, Amanda <amanda.garcia@exxonmobil.com>;Sally Carttar <SCarttar@vertexresource.com>;Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>;Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>;Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>

RE: Incident **#NAPP2403657069**

Alan,

Your request for a 90-day extension to **July 16th, 2024,** is approved. Please include this e-mail correspondence in the remediation and/or closure report.

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

From: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Sent: Wednesday, April 17, 2024 3:56 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Subject: FW: [EXTERNAL] XTO Extension Request - PLU 25 Brushy Draw West - nAPP2403657069

From: Romero, Alan <alan.romero1@exxonmobil.com>
Sent: Wednesday, April 17, 2024 3:26 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>
Cc: Ruth, Amy <amy.ruth@exxonmobil.com>; Garcia, Amanda <amanda.garcia@exxonmobil.com>; Sally Carttar <SCarttar@vertex.ca>
Subject: [EXTERNAL] XTO Extension Request - PLU 25 Brushy Draw West - nAPP2403657069

Good afternoon,

XTO is requesting an extension for the current deadline of April 22, 2024, to complete remedial activities and submitting a report required in 19.15.29.12.B.(1) NMAC at the PLU 25 Brushy Draw West (nAPP2403657069). In order to complete all remedial activities and submit a report, XTO requests an extension until July 21, 2024.

Respectfully,

Alan Romero
Environmental Advisor
Permian BU – New Mexico-Delaware
ExxonMobil Upstream Oil & Gas Unconventional
Direct: (575) 988-3383
alan.romero1@exxonmobil.com

XTO ENERGY, INC. – An ExxonMobil Subsidiary
3104 E. Greene Street | Carlsbad, New Mexico 88220

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QUESTIONS

Action 364633

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 364633
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2403657069**
Incident Name	**NAPP2403657069 PLU 25 BRUSHY DRAW WEST @ 0**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Plan Received**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	PLU 25 Brushy Draw West
Date Release Discovered	01/22/2024
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: Corrosion | Flow Line - Production | Produced Water | Released: 40 BBL | Recovered: 35 BBL | Lost: 5 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: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 364633
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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

I hereby agree and sign off to the above statement	Name: Garrett Green Title: SHE Coordinator Email: garrett.green@exxonmobil.com Date: 02/05/2024

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 364633
	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 300 and 500 (ft.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between ½ and 1 (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 ½ and 1 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 500 and 1000 (ft.)
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	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	17000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	23
GRO+DRO (EPA SW-846 Method 8015M)	23
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	07/22/2024
On what date will (or did) the final sampling or liner inspection occur	06/24/2024
On what date will (or was) the remediation complete(d)	10/22/2024
What is the estimated surface area (in square feet) that will be reclaimed	8480
What is the estimated volume (in cubic yards) that will be reclaimed	200
What is the estimated surface area (in square feet) that will be remediated	8480
What is the estimated volume (in cubic yards) that will be remediated	200
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 364633
	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: Alan Romero Title: Regulatory Analyst Email: alan.romero1@exxonmobil.com Date: 07/16/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 364633
	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: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 364633
	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

Action 364633

CONDITIONS

Operator:	OGRID:
XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	5380
	Action Number: 364633
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards from Table 1 of the OCD Spill Rule for site assessment/characterization/proven depth to water determination. Sidewall/Edge samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. Please collect confirmation samples, representing no more than 200 ft2. All sidewall samples should be taken from the sidewall of the excavation. Please make sure that the edge of the release extent is accurately defined. The work will need to occur in 90 days after the report has been reviewed.	8/5/2024