

Location:	PLU 29 Big Sinks West CTB	
Spill Date:	9/7/2023	
Area 1		
Approximate Area =	2917.10	sq. ft.
Average Saturation (or depth) of spill =	2.00	inches
Average Porosity Factor =	0.15	
VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	12.99	bbls
TOTAL VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	12.99	bbls
TOTAL VOLUME RECOVERED		
Total Crude Oil =	0.00	bbls
Total Produced Water =	0.00	bbls

ATTACHMENT 5

Closure Criteria Worksheet			
Site Name: PLU 29 Big Sinks West CTB			
Spill Coordinates: 32.104485, -103.801960		X: 613036	Y: 3552645
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	<50	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	4,121	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	12,657	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	61,108	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or	6,935	feet
	ii) Within 1000 feet of any fresh water well or spring	6,935	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	7,255	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance to nearest subsurface mine	73,190	feet
9	Within an unstable area (Karst Map)	Medium 3,444 feet from High Karst	Critical High Medium Low
10	Within a 100-year Floodplain	No	year
	Distance to 100-year Floodplain	4,455	feet
11	Soil Type	Gravelly fine sandy loam, silty clay loam	
12	Ecological Classification	Shallow sandy, Bottomland	
13	Geology	Eolian and piedmont deposits	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<50' 51-100' >100'



12/9/2023, 5:39:15 AM

GIS WATERS PODs

- Active
- Plugged
-

OSE District Boundary

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



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 04624 POD1	4	4	1	30	25S	31E	611501	3552305		
x											
Driller License:	1184	Driller Company:				WEST TEXAS WATER WELL SERVICE					
Driller Name:	RUSSELL SOUTHERLAND										
Drill Start Date:	06/22/2022	Drill Finish Date:				06/22/2022		Plug Date:			
Log File Date:	07/25/2022	PCW Rev Date:						Source:			
Pump Type:		Pipe Discharge Size:						Estimated Yield: 0 GPM			
Casing Size:		Depth Well:				120 feet		Depth Water: 0 feet			
x											

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

12/9/23 6:43 AM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Water Right Summary


[get image list](#)

WR File Number: C 04624

Subbasin: CUB

Cross Reference: -

Primary Purpose: MON MONITORING WELL

Primary Status: PMT PERMIT

Total Acres:

Subfile: -

Header: -

Total Diversion: 0

Cause/Case: -

Agent: XTO ENERGY

Contact: ADRIAN BAKER

Owner: ENSOLUM LLC

Contact: KALEI JENNINGS

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
			1	2					
get images	726169	EXPL 2022-05-23	PMT	APR	C 04624 POD1	T	0	0	

Current Points of Diversion

POD Number	Well Tag	Source	Q		(NAD83 UTM in meters)		Other Location Desc
			64Q16Q4	Sec Tw	Rng	X Y	
C 04624 POD1	NA		4	4	1 30 25S 31E	611501 3552305	BH01

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12/9/23 6:44 AM

WATER RIGHT SUMMARY



New Mexico Office of the State Engineer

Transaction Summary

EXPL Permit To Explore

Transaction Number: 726169

Transaction Desc: C 04624 POD1

File Date: 05/20/2022

Primary Status: PMT Permit

Secondary Status: APR Approved

Person Assigned: *****




Agent: XTO ENERGY

Contact: ADRIAN BAKER


Applicant: ENSOLUM LLC

Contact: KALEI JENNINGS

Events

	Date	Type	Description	Comment	Processed By
 get images	05/20/2022	APP	Application Received	*	*****
 get images	05/20/2022	TEC	Technical Report	*PLGN PLN OPS C-	*****
	05/23/2022	FTN	Finalize non-published Trans.		*****
	06/16/2022	QAT	Quality Assurance Completed	SQ2	*****
	06/23/2022	QAT	Quality Assurance Completed	IMAGE/WELL	*****
	06/23/2022	QAT	Quality Assurance Completed	IMAGE/PLUGGING	*****
 get images	07/25/2022	LOG	Well Log Received	*	*****
	07/28/2022	DRY	Dry well log received		*****
	09/23/2022	QAT	Quality Assurance Completed	IMAGE-LOG	*****

Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
C 04624	0	0		MON MONITORING WELL
**Point of Diversion				
C 04624 POD1		611501	3552305 	

Conditions

- 1A Depth of the well shall not exceed the thickness of the valley fill.
- 4 No water shall be appropriated and beneficially used under this permit.
- B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.
- C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's

- responsibility to ensure that the well driller files the well record. The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.
- 6 The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable
- 7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.
- 16 Construction of a water well by anyone without a valid New Mexico Well Driller License is illegal, and the landowner shall bear the cost of plugging the well by a licensed New Mexico well driller. This does not apply to driven wells, the casing of which does not exceed two and three-eighths inches outside diameter.
- P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.
- Q The State Engineer retains jurisdiction over this permit.
- R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.

Action of the State Engineer

IT IS THE PERMITTEE'S RESPONSIBILITY TO OBTAIN ALL AUTHORIZATIONS AND PERMISSIONS TO DRILL ON PROPERTY OF OTHER OWNERSHIP BEFORE COMMENCING ACTIVITIES UNDER THIS PERMIT.

**** See Image For Any Additional Conditions of Approval ****

Approval Code: A - Approved

Action Date: 05/23/2022

Log Due Date: 05/23/2023

State Engineer: Mike A. Hamman, P.

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

12/9/23 6:44 AM

TRANSACTION
SUMMARY



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) C-4624 POD 1		WELL TAG ID NO.		OSE FILE NO(S) C-4624		
	WELL OWNER NAME(S) XTO ENERGY INC				PHONE (OPTIONAL) 432-236-3808		
	WELL OWNER MAILING ADDRESS 6401 HOLIDAY HILL ROAD				CITY MIDLAND	STATE TX	ZIP 79707
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE 32	MINUTES 6	SECONDS 5.66	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND	
		LONGITUDE -103	49	5.79	W	* DATUM REQUIRED: WGS 84	
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE ON POKER LAKE UNIT 30 BS # 103H PAD							
2. DRILLING & CASING INFORMATION	LICENSE NO. WD-1184		NAME OF LICENSED DRILLER RUSSELL SOUTHERLAND			NAME OF WELL DRILLING COMPANY WEST TEXAS WATER WELL SERVICE	
	DRILLING STARTED 06/22/22	DRILLING ENDED 06/22/22	DEPTH OF COMPLETED WELL (FT) 120	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)		
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A		
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD ADDITIVES - SPECIFY:						
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:						
	DEPTH (feet bgl) FROM 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)
				NO CASING IN HOLE			
3. ANNULAR MATERIAL	DEPTH (feet bgl) FROM TO		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT	
				N/A			

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 04/30/19)

FILE NO. C-4624-POD1	POD NO. POD1	TRN NO. 726169
LOCATION 25S.31E.30.4.4.1	WELL TAG ID NO. —	PAGE 1 OF 2

	DEPTH (feet bgl)		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)
	FROM	TO				
4. HYDROGEOLOGIC LOG OF WELL	0	17		CALACHIE	Y ✓ N	
	17	30		SAND	Y ✓ N	
	30	40		SAND, SMALL GRAVEL	Y ✓ N	
	40	95		SAND	Y ✓ N	
	95	120		SANDSTONE, SAND	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: <input type="checkbox"/> PUMP <input type="checkbox"/> AIR LIFT <input type="checkbox"/> BAILER <input checked="" type="checkbox"/> OTHER – SPECIFY: DRY HOLE					TOTAL ESTIMATED WELL YIELD (gpm):
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: THE BORING WILL BE SECURED AND LEFT OPEN FOR 72 HOURS AT WHICH TIME, XTO WILL ASSESS FOR THE PRESENCE OR ABSENCE OF GROUNDWATER. XTO WILL BACKFILL THE BORING FOLLOWING NMOSE ABANDONMENT PROCEDURES FOR SOIL BORING.					
	PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: RUSSELL SOUTHERLAND					
6. SIGNATURE	BY SIGNING BELOW, I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED WELL. I ALSO CERTIFY THAT THE WELL TAG, IF REQUIRED, HAS BEEN INSTALLED AND THAT THIS WELL RECORD WILL ALSO BE FILED WITH THE PERMIT HOLDER WITHIN 30 DAYS AFTER THE COMPLETION OF WELL DRILLING. <div style="display: flex; justify-content: space-between;"> <div> _____ RUSSELL SOUTHERLAND SIGNATURE OF DRILLER / PRINT SIGNEE NAME </div> <div> 06/22/2022 _____ DATE </div> </div>					









FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 04/30/2019)	
FILE NO.	POD NO.	TRN NO.	
LOCATION	WELL TAG ID NO.		PAGE 2 OF 2

Intermittent 4,121 feet



December 9, 2023

Wetlands



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





December 9, 2023

Wetlands

-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond




-  Lake
-  Other
-  Riverine

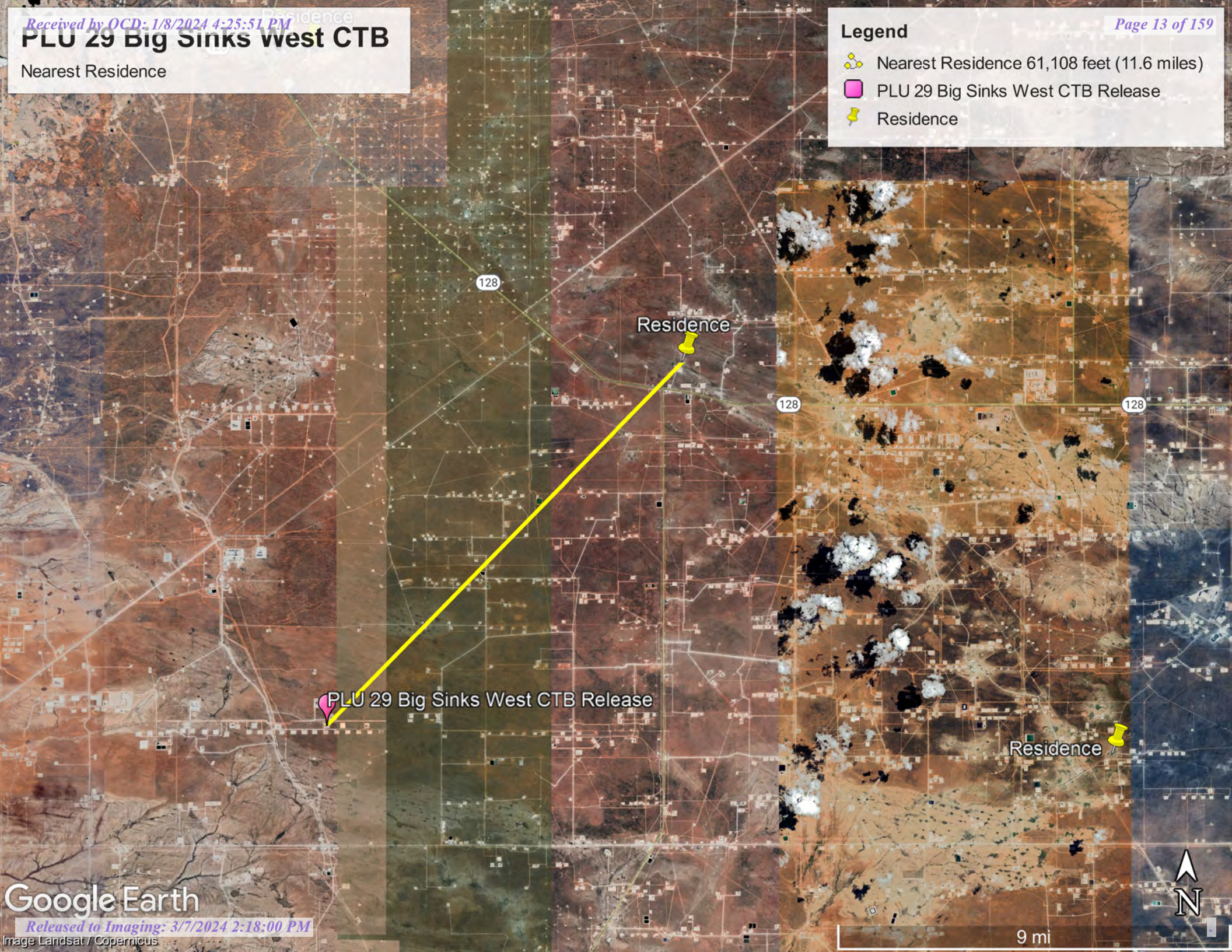
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

PLU 29 Big Sinks west CTB

Nearest Residence

Legend

-  Nearest Residence 61,108 feet (11.6 miles)
-  PLU 29 Big Sinks West CTB Release
-  Residence



Google Earth



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		
	C 02250	3	1	4	21	25S	31E	614912	3553620*		

Driller License:		Driller Company:	
Driller Name: UNKNOWN			
Drill Start Date:		Drill Finish Date:	12/31/1941
Log File Date:		Plug Date:	
Pump Type:		PCW Rcv Date:	
Pump Type:		Source:	
Pump Type:		Pipe Discharge Size:	Estimated Yield: 6 GPM
Casing Size: 8.63		Depth Well: 400 feet	Depth Water: 390 feet

*UTM location was derived from PLSS - see Help

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



New Mexico Office of the State Engineer

Water Right Summary

WR File Number: C 02250 **Subbasin:** CUB **Cross Reference:** -
Primary Purpose: STK 72-12-1 LIVESTOCK WATERING
Primary Status: DCL DECLARATION
Total Acres: 0 **Subfile:** - **Header:** -
Total Diversion: 3 **Cause/Case:** -
Owner: BUCK JACKSON TRUST
Contact: LARUE JACKSON

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
			1	2					
198471	DCL	1992-03-16	DCL	PRC	C 02250	T	0	3	

Current Points of Diversion

POD Number	Well Tag	Source	Q (NAD83 UTM in meters)						X	Y	Other Location Desc
			64	Q16	Q4	Sec	Tws	Rng			
C 02250			3	1	4	21	25S	31E	614912	3553620*	

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

Place of Use

Q	Q	64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
256	64	Q16	Q4	Sec	Tws	Rng		0	3		STK		DCL	NO PLACE OF USE GIVEN.

Source

Acres	Diversion	CU	Use	Priority	Source Description
0	3		STK		GW


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12/9/23 12:30 PM

WATER RIGHT SUMMARY

Malaga 17.5 Miles

Legend

 16.5 Miles











Google Earth

Wetland 7,255 feet



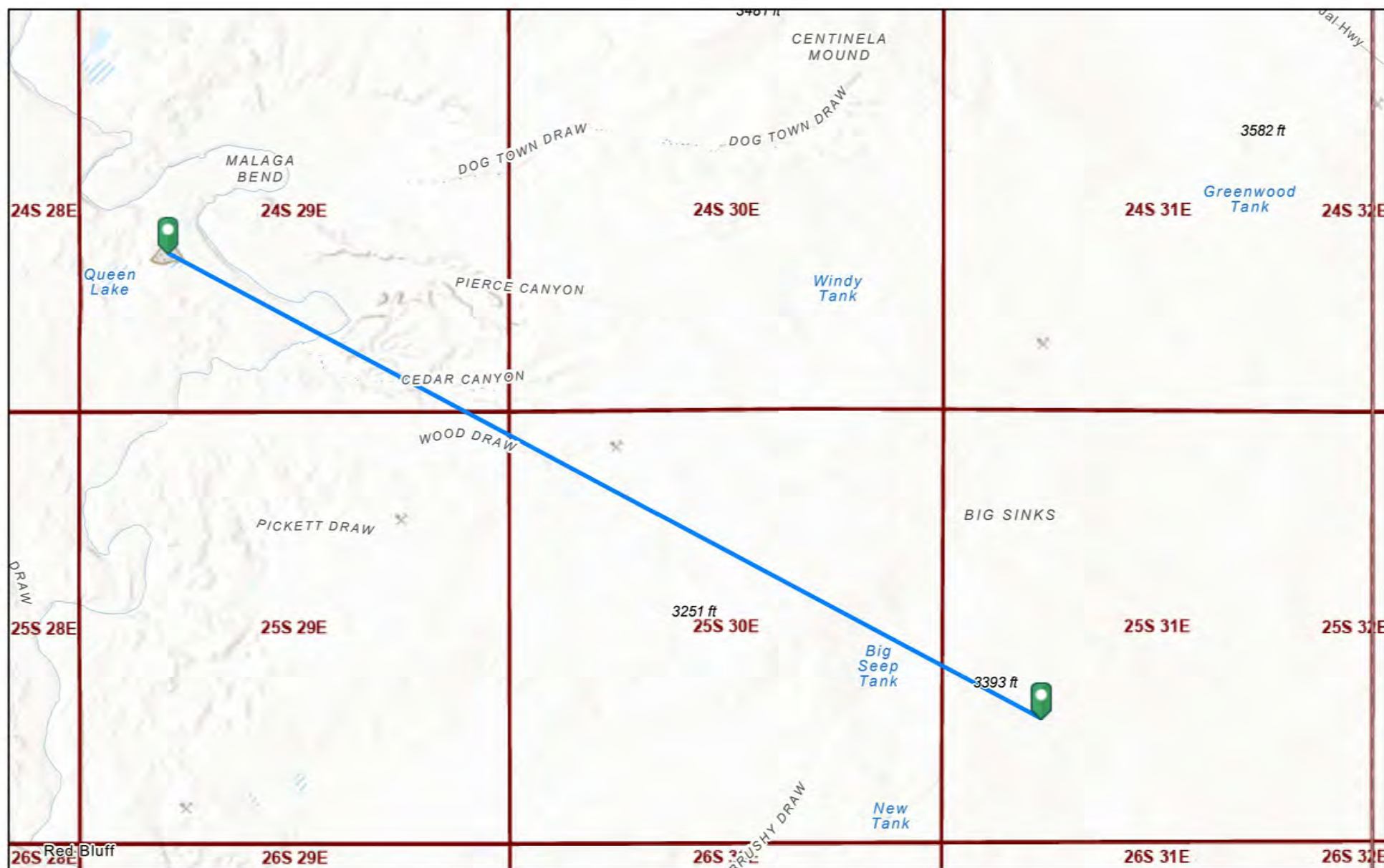
December 9, 2023

Wetlands

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

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Subsurface Mine 73,190 feet



12/8/2023, 8:07:20 PM

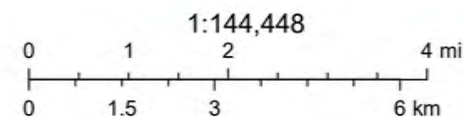
Registered Mines

Aggregate, Stone etc.



Aggregate, Stone etc. PLSS Townships

Salt

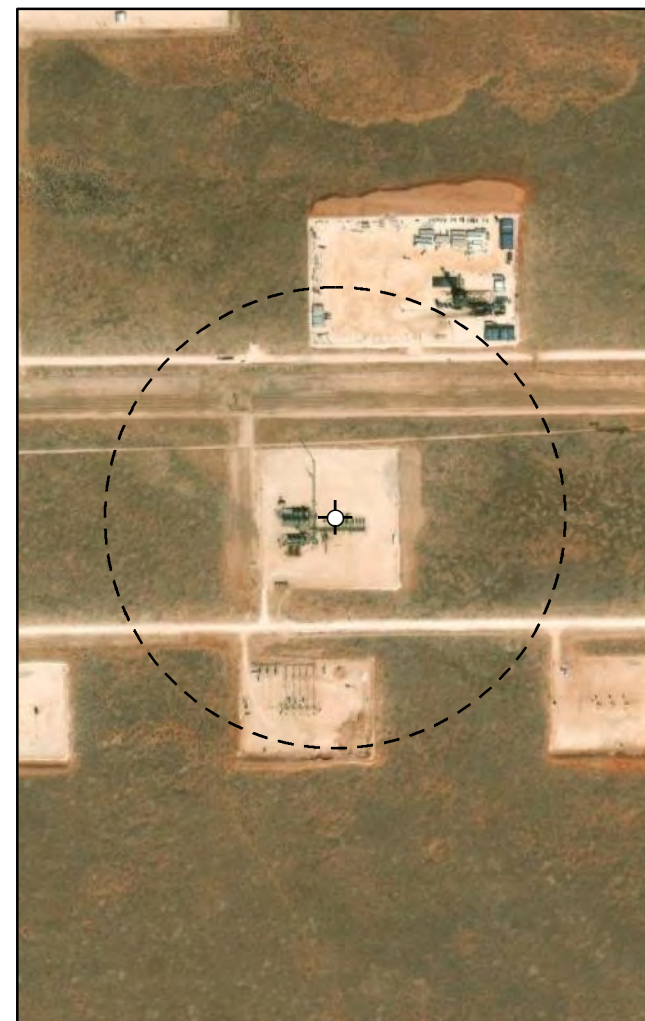
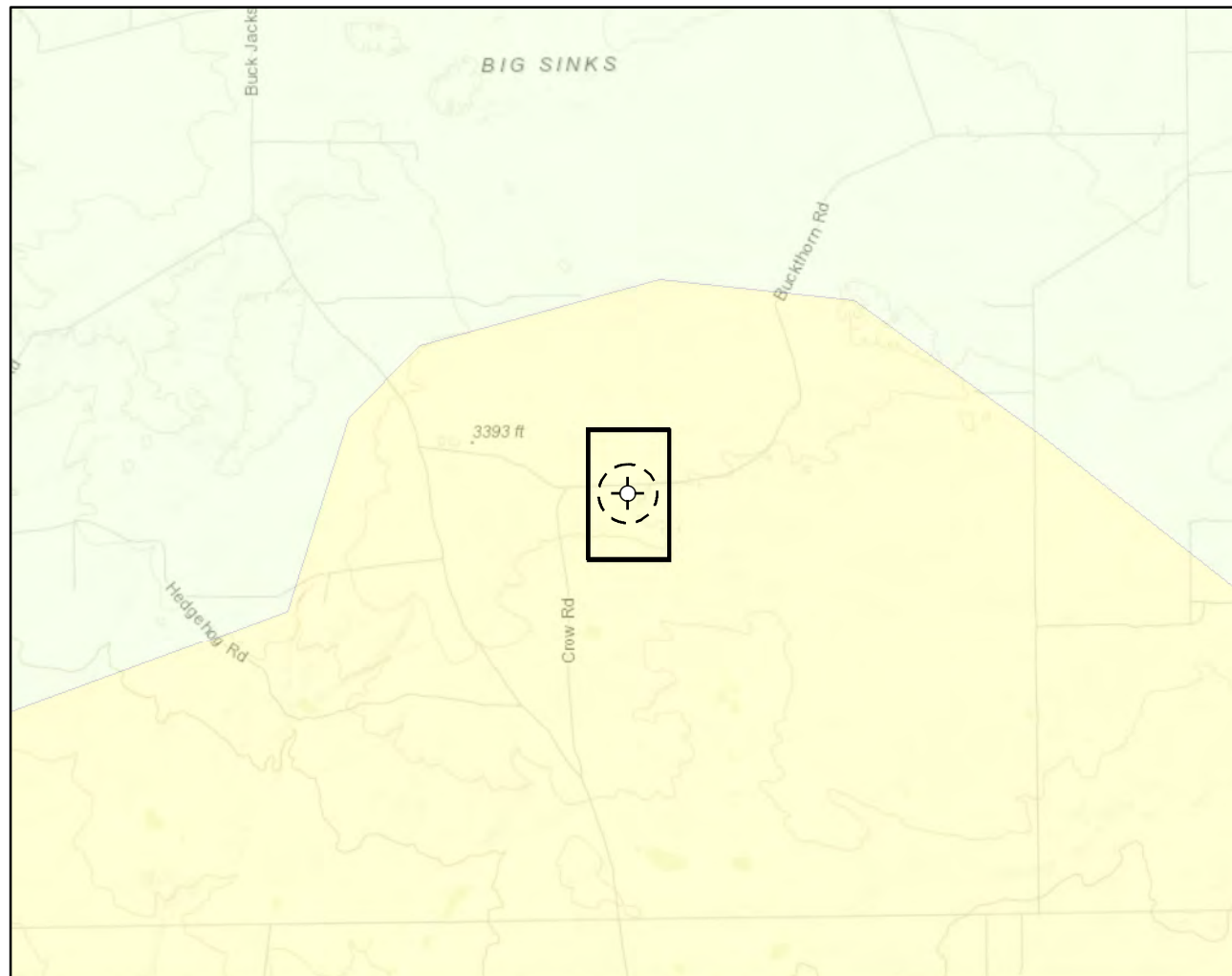


U.S. BLM, Esri, NASA, NGA, USGS, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA,

EMNRD MMD GIS Coordinator

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

Document Path: G:\Projects\US PROJECTS\XTO Energy\23E-05485 - PLU 29 Big Sinks CTB\Figure X Karst Potential Map (23E-05485)\D17385.mxd



Karst Potential

- Critical
- High
- Medium
- Low

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

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft



Map Center:
Lat/Long: 32.104485, -103.801960

NAD 1983 UTM Zone 13N
Date: Nov 06/23



**Karst Potential Map
PLU 29 Big Sinks CTB**

FIGURE:

X



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 sourced 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.

PLU 29 Big Sinks West CTB

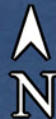
Karst Potential: Medium

Legend

-  3,444 ft. (0.65 miles)
-  High
-  Medium
-  PLU 29 Big Sinks West CTB

32.104485,-103.801960

Google Earth



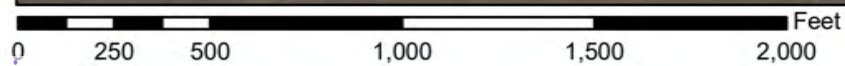
1 km



National Flood Hazard Layer FIRMette



103°48'26"W 32°6'31"N



1:6,000

103°47'48"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
		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
		Area of Minimal Flood Hazard Zone X
OTHER AREAS		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

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 **12/8/2023 at 6:47 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.

Released to Imaging: 3/7/2024 2:18:00 PM

Received by OCD: 1/8/2024 4:25:51 PM

Page 22 of 159



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

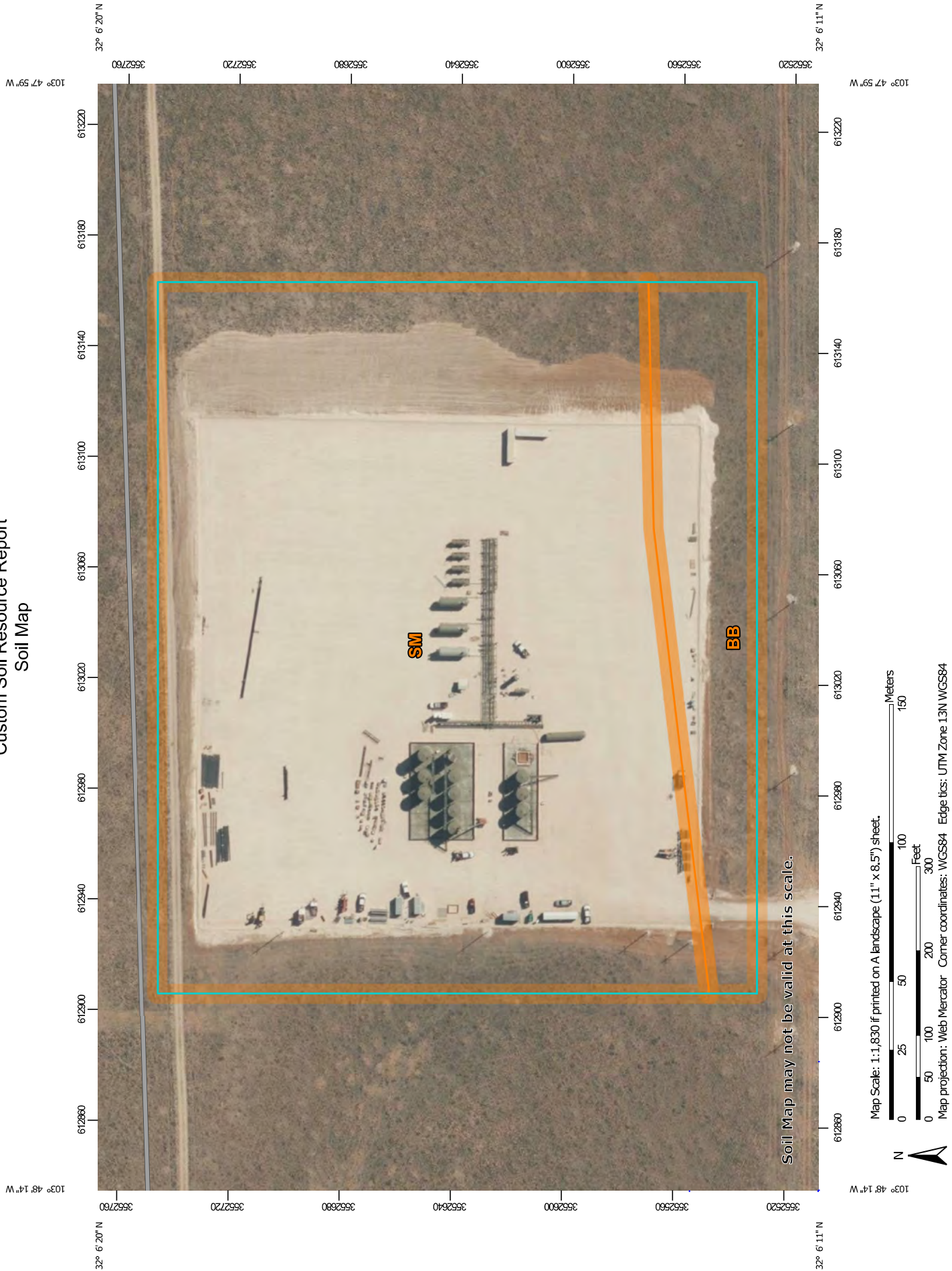
A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Eddy Area, New Mexico



December 8, 2023

Custom Soil Resource Report
Soil Map



10

Custom Soil Resource Report

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	2.0	14.3%
SM	Simona-Bippus complex, 0 to 5 percent slopes	11.8	85.7%
Totals for Area of Interest		13.8	100.0%

Map Unit Descriptions

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

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

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

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

Custom Soil Resource Report

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.

Custom Soil Resource Report

Eddy Area, New Mexico**BB—Berino complex, 0 to 3 percent slopes, eroded****Map Unit Setting***National map unit symbol:* 1w43*Elevation:* 2,000 to 5,700 feet*Mean annual precipitation:* 5 to 15 inches*Mean annual air temperature:* 57 to 70 degrees F*Frost-free period:* 180 to 260 days*Farmland classification:* Not prime farmland**Map Unit Composition***Berino and similar soils:* 60 percent*Pajarito and similar soils:* 25 percent*Minor components:* 15 percent*Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Berino****Setting***Landform:* Plains, fan piedmonts*Landform position (three-dimensional):* Riser*Down-slope shape:* Convex*Across-slope shape:* Linear*Parent material:* Mixed alluvium and/or eolian sands**Typical profile***H1 - 0 to 17 inches:* fine sand*H2 - 17 to 58 inches:* sandy clay loam*H3 - 58 to 60 inches:* loamy sand**Properties and qualities***Slope:* 0 to 3 percent*Depth to restrictive feature:* More than 80 inches*Drainage class:* Well drained*Runoff class:* Low*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high
(0.60 to 2.00 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Calcium carbonate, maximum content:* 40 percent*Maximum salinity:* Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)*Sodium adsorption ratio, maximum:* 1.0*Available water supply, 0 to 60 inches:* Moderate (about 8.0 inches)**Interpretive groups***Land capability classification (irrigated):* None specified*Land capability classification (nonirrigated):* 7e*Hydrologic Soil Group:* B*Ecological site:* R070BD003NM - Loamy Sand*Hydric soil rating:* No

Custom Soil Resource Report

Description of Pajarito**Setting**

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

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

Minor Components**Wink**

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

Cacique

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

Pajarito

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

Kermit

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

Custom Soil Resource Report

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

Custom Soil Resource Report

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

ArcGIS Geology Map



12/8/2023, 7:21:53 PM

Lithologic Units

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

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

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

ArcGIS Web AppBuilder

Environmental Site Remediation Work Plan

General Information

NMOCD District:	District 2 – Artesia	Incident ID:	nAPP2326151503
Landowner:	Bureau of Land Management	RP Reference:	N/A
Client:	XTO Energy Inc.	Site Location:	PLU 29 Big Sinks West CTB
Date:	January 4, 2024	Project #:	23E-05485
Client Contact:	Garrett Green	Phone #:	575.200.0729
Vertex PM:	Chance Dixon	Phone #:	575.988.1472

Objective

The objective of the environmental remediation work plan is to identify exceedances found during the site assessment/characterization activity and propose an appropriate remediation technique to address the open release at PLU 29 Big Sinks West CTB. The release involved produced water discharged onto the pad from a pinhole leak caused by interior corrosion of a 6-inch water line. The release occurred around and under the treaters and corresponding infrastructure. Approximately 12.99 bbl of produced water was released and none was recovered. Areas of environmental concern identified and delineated include the treaters and corresponding equipment. An aerial photograph of the site with characterization locations and approximate release area is presented on Figure 1 (Attachment 1). The current closure criteria have been selected as per New Mexico Administrative Code 19.15.29.12 and are presented below.

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
< 50 feet	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – Total dissolved solids

TPH – Total petroleum hydrocarbons = 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 November 8, 2023, and completed on December 1, 2023. A total of nine sample points (boreholes) were established and samples were collected for field screening. Samples were obtained at various depths for horizontal and vertical delineation. In total, 15 samples were submitted to Eurofins Xenco Laboratory in Midland, Texas, for analysis. The sample locations are presented in Figure 1 (Attachment 1). Laboratory analysis results have been compared to the above-noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 2). Daily field reports and laboratory data reports are included in Attachments 3 and 4, respectively. All applicable research as it pertains to closure criteria selection is presented in Attachment 5. Exceedances to reclamation and remediation criteria are identified in the table as bold with a gray background.

Proposed Remedial Activities

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation with hand tools. 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. The soil will be excavated with hand tools in increments of 0.5 or 2 feet below the ground surface (bgs). Field screening will be utilized to confirm the removal of contaminated soil below the applicable closure criteria.

Environmental Site Remediation Work Plan

Contaminated soils will be stored on a 30mil liner prior to disposal at an approved facility. Once excavation is complete, confirmatory samples will be collected and laboratory analysis completed to confirm closure criteria guidelines are met. Excavations will be backfilled with clean soil sourced locally.

Around Treaters and Corresponding Equipment – nAPP2326151503

Exceedances to closure criteria were identified at sample points BH23-03, BH23-06, BH23-10, and BH23-11. The entire release area including BH23-10 and BH23-11 will be excavated to 0.5 feet bgs except the area around BH23-03, which will be excavated to 4.5 feet bgs. A hand crew will be utilized to perform all removal of contaminated soil. Field screening will be utilized to find the horizontal and vertical extents of the impacted area. Confirmation samples will be collected as per New Mexico Oil Conservation Division guidance and submitted for laboratory analysis of all applicable parameters. **The estimated volume to be excavated is approximately 175 cubic yards.** Excavation is planned to be completed within 90 days of approval of this Environmental Site Remediation Work Plan. The completed NMOCOD C-141 Report for the incident is presented in Attachment 6. The planned depths of each exceedance is listed below.

Sample Point	Excavation Depth	Remediation Method
BH22-03	4.5	Handcrew
BH23-06	0.5	Handcrew
BH23-10	0.5	Handcrew
BH23-11	0.5	Handcrew

The site does not currently have accurate data to depict the depth to groundwater. Most of the site has been deemed unsafe to excavate past 0.5 feet bgs due to the high-producing production equipment it lies beneath. If exceedances to NMOCOD's strictest closure criteria are collected during confirmation sampling or if a refusal is hit at that depth, the depth to groundwater will be determined by drilling an exploratory borehole permitted by the New Mexico Office of the State Engineer (NMOSE) within a 0.5-mile radius of the site. The borehole will be advanced to 55 feet bgs to determine if groundwater is present at that depth. The plan for the borehole will be to loosen the current closure criteria to NMOCOD's 51-100 feet on-pad criteria. Reclamation with the top four feet meeting the strictest standards will then be deferred until all oil and gas activities on the site have been terminated per 19.15.29.13 NMAC. If no groundwater is detected at 55 feet bgs, closure criteria for the site will then be associated with the following constituent concentration limits as presented in Table 2.

Should you have any questions or concerns, please do not hesitate to contact Chance Dixon at 575.988.1472 or cdixon@vertex.ca.

Lakin Pullman, B.Sc.
ENVIRONMENTAL SPECIALIST, REPORTING

Date

Chance Dixon, B.Sc.
PROJECT MANAGER, REPORT REVIEW

Date

VERSATILITY. EXPERTISE.





Environmental Site Remediation Work Plan

Attachments

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

ATTACHMENT 1

Document Path: C:\Users\scart\Vertex Resource Group Ltd\Vertex US Operations - General\Environmental Services\10 - Geomatics\SPC\XTO 23E-05485 PLU 29 Big Sinks West CTB\Figure 1, Characterization_PLU 29 Big Sinks West CTB_17521.pdf.mxd



✦ Borehole (Prefixed by "BH23-")

Release Area (~3,699 sq.ft.)



0 12.5 25 ft
Map Center:
Lat/Long: 32.104424, -103.801921

NAD 1983 UTM Zone 13N
Date: Dec 12/23



Characterization Sampling Site Schematic PLU 29 Big Sinks West CTB

FIGURE:

1



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

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

VERSATILITY. EXPERTISE.

ATTACHMENT 2

Client Name: XTO Energy, Inc.

Site Name: PLU 29 Big Sinks West CTB

NMOCD Tracking #: nAPP2326151503

Project #: 23E-05485

Lab Reports: 890-5610-1, 890-5632-1, 890-5683-1, and 890-5756-1

Table 3. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs												
Sample Description			Field Screening		Laboratory Results							
Sample ID	Depth (ft)	Sample Date	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Petroleum Hydrocarbons							Inorganic
					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)
BH23-01	0	November 9, 2023	61	37	ND	ND	ND	ND	ND	ND	ND	78.9
	2	November 9, 2023	24	37	ND	ND	ND	ND	ND	ND	ND	15.7
BH23-03	0	November 8, 2023	67	7,729	ND	ND	ND	ND	ND	ND	ND	9920
	2	November 8, 2023	49	3,204	ND	ND	ND	ND	ND	ND	ND	601
	4	November 8, 2023	50	353	ND	ND	ND	ND	ND	ND	ND	3040
	4.5	December 1, 2023	85	418	ND	ND	ND	ND	ND	ND	ND	ND
BH23-06	0	November 10, 2023	56	1,010	-	-	-	-	-	-	-	-
	1.5	November 10, 2023	52	581	-	-	-	-	-	-	-	-
BH23-08	0	November 9, 2023	48	2,226	ND	ND	ND	ND	ND	ND	ND	58.8
	2	November 9, 2023	57	1,957	ND	ND	ND	ND	ND	ND	ND	460
	4	November 9, 2023	49	33	ND	ND	ND	ND	ND	ND	ND	34.7
BH23-10	0	November 14, 2023	73	1,033	-	-	-	-	-	-	-	-
	2	November 14, 2023	28	648	-	-	-	-	-	-	-	-
BH23-11	0	November 14, 2023	36	854	-	-	-	-	-	-	-	-
	2	November 14, 2023	23	99	-	-	-	-	-	-	-	-
BH23-13	0	November 14, 2023	82	186	ND	ND	ND	ND	ND	ND	ND	39.1
	1.5	November 14, 2023	41	89	ND	ND	ND	ND	ND	ND	ND	51.6
BH23-14	0	November 21, 2023	ND	172	ND	ND	ND	ND	ND	ND	ND	5.07
	2	November 21, 2023	ND	315	ND	ND	ND	ND	ND	ND	ND	ND
BH23-15	0	November 21, 2023	200	215	ND	ND	ND	ND	ND	ND	ND	ND
	2	November 21, 2023	232	242	ND	ND	ND	ND	ND	ND	ND	5.27

"ND" Not Detected at the Reporting Limit

"- " indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NMOCD Remediation Closure Criteria

ATTACHMENT 3



Daily Site Visit Report

Client:	<u>XTO Energy Inc. (US)</u>	Inspection Date:	<u>11/8/2023</u>
Site Location Name:	<u>PLU 29 Big Sinks West</u>	Report Run Date:	<u>11/8/2023 9:55 PM</u>
Client Contact Name:	<u>Garrett Green</u>	API #:	<u></u>
Client Contact Phone #:	<u>575-200-0729</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>11/8/2023 7:30 AM</u>
Departed Site	<u>11/8/2023 11:48 AM</u>

Daily Site Visit Report



Site Sketch

Site Sketch

Daily Site Visit Report



Field Notes

11:11 Arrived on site and filled out safety paperwork.

11:12 Obtained work authorization for hand augering on site from a Garrett Green on the phone.

14:50 Collected samples BH23-01 through BH23-04 at 0' and 2'. Also collected BH23-03 at 4'.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: South



Western portion of spill area between equipment.

Viewing Direction: East



Southern spill area with surface crystallization.

Viewing Direction: East



Southeastern portion of spill area behind equipment.

Viewing Direction: South



Northeastern spill area.



Daily Site Visit Report

Viewing Direction: West



Description Photo: 6
Viewing Direction: West
Cause: Southern spill area with extensive staining.
Created: 11/8/2023 11:18:18 AM
Lat: 32.104390, Long: -103.861853

Southern spill area with surface staining.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Hunter Klein

Signature:

A handwritten signature in black ink, appearing to be 'Hunter Klein', written over a horizontal line.

Signature



Daily Site Visit Report

Client:	XTO Energy Inc. (US)	Inspection Date:	11/21/2023
Site Location Name:	PLU 29 Big Sinks West	Report Run Date:	11/21/2023 10:53 PM
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	11/21/2023 9:07 AM
Departed Site	11/21/2023 2:15 PM

Field Notes

- 13:57** Completed Vertex safety paperwork upon arrival, as well as the safety meeting with the dig crew recommended for XTO. We wait until noon for Garrett Green to get on site to give the work authorization needed to start the remaining characterization around the machines. All BH were scanned with pin-finder before starting to dig.
- 13:57** Obtained BH23-14 and 15 at 0 and 2'
- 14:00** All samples were field-screened for Cl and TPH. Cl is under 315 ppm for all samples while TPH for BH23-14 is below 5 ppm at 0 and 2 and around 200 ppm for BH23-15 at 0 and 2.
- 14:00** All samples were jarred and sent to the lab.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: North



Site Placard

Viewing Direction: North



BH23-15 at 2

Viewing Direction: Southwest



BH23-14 at 2'

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature:

A handwritten signature in black ink, consisting of a series of loops and curves, positioned above a horizontal line.

Signature

ATTACHMENT 4



Environment Testing

- 1
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ANALYTICAL REPORT

PREPARED FOR

Attn: Chance Dixon
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 11/17/2023 1:59:38 PM

JOB DESCRIPTION

PLU 29 WEST BIG SINKS
23E-05485

JOB NUMBER

890-5610-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



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11/17/2023 1:59:38 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Laboratory Job ID: 890-5610-1
SDG: 23E-05485

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Definitions/Glossary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Job ID: 890-5610-1

Laboratory: Eurofins Carlsbad

Narrative**Job Narrative
890-5610-1**

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 11/9/2023 3:44 PM. 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 4.2°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH 23-03 0' (890-5610-1), BH 23-03 2' (890-5610-2), BH 23-03 4' (890-5610-3), BH 23-01 0' (890-5610-4), BH 23-01 2' (890-5610-5), BH 23-08 0' (890-5610-6), BH 23-08 2' (890-5610-7) and BH 23-08 4' (890-5610-8).

GC VOA

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-67061 and analytical batch 880-67021 was outside the upper control limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-35797-A-81-D). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BH 23-08 4' (890-5610-8). 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: Surrogate recovery for the following samples were outside control limits: (880-35343-A-1-F), (880-35343-A-1-G MS) and (880-35343-A-1-H MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: BH 23-08 2' (890-5610-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Spike compounds were inadvertently omitted during the extraction process for the matrix spike/matrix spike duplicate (MS/MSD); therefore, matrix spike recoveries are unavailable for preparation batch 880-67028 and analytical batch 880-67152. The associated laboratory control sample (LCS) met acceptance criteria.

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: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-66791 and analytical batch 880-66928 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

Case Narrative

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Job ID: 890-5610-1 (Continued)

Laboratory: Eurofins Carlsbad (Continued)

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

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Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-03 0'

Lab Sample ID: 890-5610-1

Date Collected: 11/08/23 09:00

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 0'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 15:30	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 15:30	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 15:30	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		11/15/23 11:41	11/16/23 15:30	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 15:30	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		11/15/23 11:41	11/16/23 15:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	11/15/23 11:41	11/16/23 15:30	1
1,4-Difluorobenzene (Surr)	122		70 - 130	11/15/23 11:41	11/16/23 15:30	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			11/16/23 15:30	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7	mg/Kg			11/16/23 14:55	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	<49.7	U	49.7	mg/Kg		11/15/23 09:52	11/16/23 14:55	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7	mg/Kg		11/15/23 09:52	11/16/23 14:55	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		11/15/23 09:52	11/16/23 14:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130	11/15/23 09:52	11/16/23 14:55	1
o-Terphenyl	126		70 - 130	11/15/23 09:52	11/16/23 14:55	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9920		100	mg/Kg			11/14/23 20:38	20

Client Sample ID: BH 23-03 2'

Lab Sample ID: 890-5610-2

Date Collected: 11/08/23 09:05

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 15:50	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 15:50	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 15:50	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/15/23 11:41	11/16/23 15:50	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 15:50	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/15/23 11:41	11/16/23 15:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	11/15/23 11:41	11/16/23 15:50	1

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-03 2'
Date Collected: 11/08/23 09:05
Date Received: 11/09/23 15:44
Sample Depth: 2'

Lab Sample ID: 890-5610-2
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC) (Continued)									
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1,4-Difluorobenzene (Surr)	121		70 - 130			11/15/23 11:41	11/16/23 15:50	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/16/23 15:50	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.6	U	49.6	mg/Kg			11/16/23 15:16	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	<49.6	U	49.6	mg/Kg		11/15/23 09:52	11/16/23 15:16	1	
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6	mg/Kg		11/15/23 09:52	11/16/23 15:16	1	
Oil Range Organics (Over C28-C36)	<49.6	U	49.6	mg/Kg		11/15/23 09:52	11/16/23 15:16	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	109		70 - 130			11/15/23 09:52	11/16/23 15:16	1	
o-Terphenyl	118		70 - 130			11/15/23 09:52	11/16/23 15:16	1	
Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	601		25.1	mg/Kg			11/14/23 20:44	5	

Client Sample ID: BH 23-03 4'
Date Collected: 11/08/23 09:10
Date Received: 11/09/23 15:44
Sample Depth: 4'

Lab Sample ID: 890-5610-3
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00198	U	0.00198	mg/Kg		11/15/23 11:41	11/16/23 16:11	1	
Toluene	<0.00198	U	0.00198	mg/Kg		11/15/23 11:41	11/16/23 16:11	1	
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		11/15/23 11:41	11/16/23 16:11	1	
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		11/15/23 11:41	11/16/23 16:11	1	
o-Xylene	<0.00198	U	0.00198	mg/Kg		11/15/23 11:41	11/16/23 16:11	1	
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		11/15/23 11:41	11/16/23 16:11	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	102		70 - 130			11/15/23 11:41	11/16/23 16:11	1	
1,4-Difluorobenzene (Surr)	116		70 - 130			11/15/23 11:41	11/16/23 16:11	1	
Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00396	U	0.00396	mg/Kg			11/16/23 16:11	1	
Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.1	U	50.1	mg/Kg			11/16/23 15:37	1	

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-03 4'

Lab Sample ID: 890-5610-3

Date Collected: 11/08/23 09:10

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 4'

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	<50.1	U	50.1	mg/Kg		11/15/23 09:52	11/16/23 15:37	1
Diesel Range Organics (Over C10-C28)	<50.1	U	50.1	mg/Kg		11/15/23 09:52	11/16/23 15:37	1
Oil Range Organics (Over C28-C36)	<50.1	U	50.1	mg/Kg		11/15/23 09:52	11/16/23 15:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130			11/15/23 09:52	11/16/23 15:37	1
o-Terphenyl	119		70 - 130			11/15/23 09:52	11/16/23 15:37	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3040		24.9	mg/Kg			11/14/23 21:04	5

Client Sample ID: BH 23-01 0'

Lab Sample ID: 890-5610-4

Date Collected: 11/09/23 09:00

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 0'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 18:02	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 18:02	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 18:02	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/15/23 11:41	11/16/23 18:02	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 18:02	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/15/23 11:41	11/16/23 18:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84		70 - 130			11/15/23 11:41	11/16/23 18:02	1
1,4-Difluorobenzene (Surr)	109		70 - 130			11/15/23 11:41	11/16/23 18:02	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/16/23 18:02	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			11/16/23 15:58	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	<50.4	U	50.4	mg/Kg		11/15/23 09:52	11/16/23 15:58	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4	mg/Kg		11/15/23 09:52	11/16/23 15:58	1
Oil Range Organics (Over C28-C36)	<50.4	U	50.4	mg/Kg		11/15/23 09:52	11/16/23 15:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130			11/15/23 09:52	11/16/23 15:58	1
o-Terphenyl	115		70 - 130			11/15/23 09:52	11/16/23 15:58	1

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-01 0'

Lab Sample ID: 890-5610-4

Date Collected: 11/09/23 09:00

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 0'

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	78.9		5.05	mg/Kg			11/14/23 10:44	1

Client Sample ID: BH 23-01 2'

Lab Sample ID: 890-5610-5

Date Collected: 11/09/23 09:05

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 18:22	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 18:22	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 18:22	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		11/15/23 11:41	11/16/23 18:22	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 18:22	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		11/15/23 11:41	11/16/23 18:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130			11/15/23 11:41	11/16/23 18:22	1
1,4-Difluorobenzene (Surr)	105		70 - 130			11/15/23 11:41	11/16/23 18:22	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			11/16/23 18:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.5	U	50.5	mg/Kg			11/16/23 16:19	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	<50.5	U	50.5	mg/Kg		11/15/23 09:52	11/16/23 16:19	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		11/15/23 09:52	11/16/23 16:19	1
Oil Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		11/15/23 09:52	11/16/23 16:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			11/15/23 09:52	11/16/23 16:19	1
o-Terphenyl	120		70 - 130			11/15/23 09:52	11/16/23 16:19	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.7		5.01	mg/Kg			11/14/23 10:49	1

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-08 0'

Lab Sample ID: 890-5610-6

Date Collected: 11/09/23 09:10

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 0'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		11/15/23 11:41	11/16/23 18:42	1
Toluene	<0.00201	U	0.00201	mg/Kg		11/15/23 11:41	11/16/23 18:42	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		11/15/23 11:41	11/16/23 18:42	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		11/15/23 11:41	11/16/23 18:42	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		11/15/23 11:41	11/16/23 18:42	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		11/15/23 11:41	11/16/23 18:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	11/15/23 11:41	11/16/23 18:42	1
1,4-Difluorobenzene (Surr)	118		70 - 130	11/15/23 11:41	11/16/23 18:42	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			11/16/23 18:42	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7	mg/Kg			11/16/23 16:40	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	<49.7	U	49.7	mg/Kg		11/15/23 09:52	11/16/23 16:40	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7	mg/Kg		11/15/23 09:52	11/16/23 16:40	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		11/15/23 09:52	11/16/23 16:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	11/15/23 09:52	11/16/23 16:40	1
o-Terphenyl	118		70 - 130	11/15/23 09:52	11/16/23 16:40	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	58.8		4.98	mg/Kg			11/14/23 14:23	1

Client Sample ID: BH 23-08 2'

Lab Sample ID: 890-5610-7

Date Collected: 11/09/23 09:15

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		11/15/23 11:41	11/16/23 19:03	1
Toluene	<0.00202	U	0.00202	mg/Kg		11/15/23 11:41	11/16/23 19:03	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		11/15/23 11:41	11/16/23 19:03	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		11/15/23 11:41	11/16/23 19:03	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		11/15/23 11:41	11/16/23 19:03	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		11/15/23 11:41	11/16/23 19:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	11/15/23 11:41	11/16/23 19:03	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-08 2'

Lab Sample ID: 890-5610-7

Date Collected: 11/09/23 09:15

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 2'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	117		70 - 130	11/15/23 11:41	11/16/23 19:03	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			11/16/23 19:03	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			11/16/23 17:01	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	<49.9	U	49.9	mg/Kg		11/15/23 09:52	11/16/23 17:01	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		11/15/23 09:52	11/16/23 17:01	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		11/15/23 09:52	11/16/23 17:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	126		70 - 130			11/15/23 09:52	11/16/23 17:01	1
o-Terphenyl	136	S1+	70 - 130			11/15/23 09:52	11/16/23 17:01	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	460		50.4	mg/Kg			11/14/23 14:29	10

Client Sample ID: BH 23-08 4'

Lab Sample ID: 890-5610-8

Date Collected: 11/09/23 09:20

Matrix: Solid

Date Received: 11/09/23 15:44

Sample Depth: 4'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 19:23	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 19:23	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 19:23	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/15/23 11:41	11/16/23 19:23	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/15/23 11:41	11/16/23 19:23	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/15/23 11:41	11/16/23 19:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	129		70 - 130	11/15/23 11:41	11/16/23 19:23	1
1,4-Difluorobenzene (Surr)	164	S1+	70 - 130	11/15/23 11:41	11/16/23 19:23	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/16/23 19:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			11/16/23 17:22	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-08 4'
Date Collected: 11/09/23 09:20
Date Received: 11/09/23 15:44
Sample Depth: 4'

Lab Sample ID: 890-5610-8
Matrix: Solid

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	<50.0	U	50.0	mg/Kg		11/15/23 09:52	11/16/23 17:22	1	
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/15/23 09:52	11/16/23 17:22	1	
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/15/23 09:52	11/16/23 17:22	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	110		70 - 130			11/15/23 09:52	11/16/23 17:22	1	
o-Terphenyl	119		70 - 130			11/15/23 09:52	11/16/23 17:22	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	34.7		5.05	mg/Kg			11/14/23 11:06	1	

Surrogate Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	BFB1	DFBZ1				
		(70-130)	(70-130)				
880-35797-A-81-B MS	Matrix Spike	103	98				
880-35797-A-81-C MSD	Matrix Spike Duplicate	90	108				
890-5610-1	BH 23-03 0'	97	122				
890-5610-2	BH 23-03 2'	99	121				
890-5610-3	BH 23-03 4'	102	116				
890-5610-4	BH 23-01 0'	84	109				
890-5610-5	BH 23-01 2'	90	105				
890-5610-6	BH 23-08 0'	97	118				
890-5610-7	BH 23-08 2'	92	117				
890-5610-8	BH 23-08 4'	129	164 S1+				
LCS 880-67061/1-A	Lab Control Sample	99	116				
LCSD 880-67061/2-A	Lab Control Sample Dup	105	110				
MB 880-67061/5-A	Method Blank	117	154 S1+				
MB 880-67094/5-A	Method Blank	114	119				
Surrogate Legend							
BFB = 4-Bromofluorobenzene (Surr)							
DFBZ = 1,4-Difluorobenzene (Surr)							

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	1CO1	OTPH1				
		(70-130)	(70-130)				
880-35343-A-1-G MS	Matrix Spike	2 S1-	0.2 S1-				
880-35343-A-1-H MSD	Matrix Spike Duplicate	2 S1-	0.2 S1-				
890-5610-1	BH 23-03 0'	114	126				
890-5610-2	BH 23-03 2'	109	118				
890-5610-3	BH 23-03 4'	108	119				
890-5610-4	BH 23-01 0'	106	115				
890-5610-5	BH 23-01 2'	105	120				
890-5610-6	BH 23-08 0'	107	118				
890-5610-7	BH 23-08 2'	126	136 S1+				
890-5610-8	BH 23-08 4'	110	119				
LCS 880-67028/2-A	Lab Control Sample	97	112				
LCSD 880-67028/3-A	Lab Control Sample Dup	92	105				
MB 880-67028/1-A	Method Blank	109	124				
Surrogate Legend							
1CO = 1-Chlorooctane							
OTPH = o-Terphenyl							

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-67061/5-A

Matrix: Solid

Analysis Batch: 67021

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67061

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 12:38	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 12:38	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 12:38	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		11/15/23 11:41	11/16/23 12:38	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/15/23 11:41	11/16/23 12:38	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		11/15/23 11:41	11/16/23 12:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130	11/15/23 11:41	11/16/23 12:38	1
1,4-Difluorobenzene (Surr)	154	S1+	70 - 130	11/15/23 11:41	11/16/23 12:38	1

Lab Sample ID: LCS 880-67061/1-A

Matrix: Solid

Analysis Batch: 67021

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67061

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.1235		mg/Kg		124	70 - 130
Toluene	0.100	0.08522		mg/Kg		85	70 - 130
Ethylbenzene	0.100	0.08726		mg/Kg		87	70 - 130
m-Xylene & p-Xylene	0.200	0.1904		mg/Kg		95	70 - 130
o-Xylene	0.100	0.09465		mg/Kg		95	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	116		70 - 130

Lab Sample ID: LCSD 880-67061/2-A

Matrix: Solid

Analysis Batch: 67021

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 67061

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.1191		mg/Kg		119	70 - 130	4	35
Toluene	0.100	0.08593		mg/Kg		86	70 - 130	1	35
Ethylbenzene	0.100	0.08452		mg/Kg		85	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.1801		mg/Kg		90	70 - 130	6	35
o-Xylene	0.100	0.09651		mg/Kg		97	70 - 130	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	110		70 - 130

Lab Sample ID: 880-35797-A-81-B MS

Matrix: Solid

Analysis Batch: 67021

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 67061

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.0996	0.08388		mg/Kg		84	70 - 130
Toluene	<0.00199	U F1	0.0996	0.06167	F1	mg/Kg		62	70 - 130

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

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

Lab Sample ID: 880-35797-A-81-B MS
Matrix: Solid
Analysis Batch: 67021

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 67061

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U F1	0.0996	0.06371	F1	mg/Kg		64	70 - 130
m-Xylene & p-Xylene	<0.00398	U F1	0.199	0.1444		mg/Kg		72	70 - 130
o-Xylene	<0.00199	U F1	0.0996	0.07765		mg/Kg		78	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	103		70 - 130						
1,4-Difluorobenzene (Surr)	98		70 - 130						

Lab Sample ID: 880-35797-A-81-C MSD
Matrix: Solid
Analysis Batch: 67021

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 67061

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.08417		mg/Kg		84	70 - 130	0	35
Toluene	<0.00199	U F1	0.100	0.06025	F1	mg/Kg		60	70 - 130	2	35
Ethylbenzene	<0.00199	U F1	0.100	0.05329	F1	mg/Kg		53	70 - 130	18	35
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.1270	F1	mg/Kg		63	70 - 130	13	35
o-Xylene	<0.00199	U F1	0.100	0.06890	F1	mg/Kg		69	70 - 130	12	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	90		70 - 130								
1,4-Difluorobenzene (Surr)	108		70 - 130								

Lab Sample ID: MB 880-67094/5-A
Matrix: Solid
Analysis Batch: 67021

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 67094

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/15/23 13:29	11/16/23 00:55	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/15/23 13:29	11/16/23 00:55	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/15/23 13:29	11/16/23 00:55	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		11/15/23 13:29	11/16/23 00:55	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/15/23 13:29	11/16/23 00:55	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		11/15/23 13:29	11/16/23 00:55	1
Surrogate	MB %Recovery	MB Qualifier	Limits					
4-Bromofluorobenzene (Surr)	114		70 - 130					
1,4-Difluorobenzene (Surr)	119		70 - 130					

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

Lab Sample ID: MB 880-67028/1-A
Matrix: Solid
Analysis Batch: 67152

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 67028

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/15/23 09:52	11/16/23 07:31	1

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

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

Lab Sample ID: MB 880-67028/1-A

Matrix: Solid

Analysis Batch: 67152

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67028

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/15/23 09:52	11/16/23 07:31	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/15/23 09:52	11/16/23 07:31	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
1-Chlorooctane	109		70 - 130			11/15/23 09:52	11/16/23 07:31	1
o-Terphenyl	124		70 - 130			11/15/23 09:52	11/16/23 07:31	1

Lab Sample ID: LCS 880-67028/2-A

Matrix: Solid

Analysis Batch: 67152

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67028

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec	Limits		
		Result	Qualifier				Limits			
Gasoline Range Organics (GRO)-C6-C10	1000	1059		mg/Kg		106	70 - 130			
Diesel Range Organics (Over C10-C28)	1000	924.3		mg/Kg		92	70 - 130			
Surrogate		LCS	LCS				Limits			
		%Recovery	Qualifier							
1-Chlorooctane		97					70 - 130			
o-Terphenyl		112					70 - 130			

Lab Sample ID: LCSD 880-67028/3-A

Matrix: Solid

Analysis Batch: 67152

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 67028

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec	Limits	RPD	Limit
		Result	Qualifier				Limits			
Gasoline Range Organics (GRO)-C6-C10	1000	1090		mg/Kg		109	70 - 130		3	20
Diesel Range Organics (Over C10-C28)	1000	952.9		mg/Kg		95	70 - 130		3	20
Surrogate		LCSD	LCSD				Limits			
		%Recovery	Qualifier							
1-Chlorooctane		92					70 - 130			
o-Terphenyl		105					70 - 130			

Lab Sample ID: 880-35343-A-1-G MS

Matrix: Solid

Analysis Batch: 67152

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 67028

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec	Limits		
	Result	Qualifier		Result	Qualifier				Limits			
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	1010	<50.5	U F1	mg/Kg		2	70 - 130			
Diesel Range Organics (Over C10-C28)	<50.0	U F1	1010	<50.5	U F1	mg/Kg		0.3	70 - 130			
Surrogate	MS	MS							Limits			
	%Recovery	Qualifier										
1-Chlorooctane	2	S1-							70 - 130			
o-Terphenyl	0.2	S1-							70 - 130			

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

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

Lab Sample ID: 880-35343-A-1-H MSD
Matrix: Solid
Analysis Batch: 67152

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 67028

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U F1	1010	<50.5	U F1	mg/Kg		2	70 - 130	10	20
Diesel Range Organics (Over C10-C28)	<50.0	U F1	1010	<50.5	U F1	mg/Kg		-0.2	70 - 130	12	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	2	S1-	70 - 130								
o-Terphenyl	0.2	S1-	70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-66791/1-A
Matrix: Solid
Analysis Batch: 66928

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			11/14/23 08:12	1

Lab Sample ID: LCS 880-66791/2-A
Matrix: Solid
Analysis Batch: 66928

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Chloride	250	256.5		mg/Kg		103	90 - 110

Lab Sample ID: LCSD 880-66791/3-A
Matrix: Solid
Analysis Batch: 66928

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

			Spike	LCS	LCS				%Rec		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Chloride			250	257.8		mg/Kg		103	90 - 110	1	20

Lab Sample ID: 880-35571-A-8-D MS
Matrix: Solid
Analysis Batch: 66928

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier				Limits		
Chloride	51.3		251	302.3		mg/Ka		100	90 - 110		

Lab Sample ID: 880-35571-A-8-E MSD
Matrix: Solid
Analysis Batch: 66928

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	51.3		251	303.3		mg/Kg		100	90 - 110	0	20

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-35649-A-4-B MS

Matrix: Solid

Analysis Batch: 66928

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	7720	F1	2530	10720	F1	mg/Kg		119	90 - 110

Lab Sample ID: 880-35649-A-4-C MSD

Matrix: Solid

Analysis Batch: 66928

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	7720	F1	2530	10860	F1	mg/Kg		124	90 - 110	1	20

Lab Sample ID: MB 880-66983/1-A

Matrix: Solid

Analysis Batch: 67006

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			11/14/23 18:25	1

Lab Sample ID: LCS 880-66983/2-A

Matrix: Solid

Analysis Batch: 67006

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	241.8		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-66983/3-A

Matrix: Solid

Analysis Batch: 67006

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	241.8		mg/Kg		97	90 - 110	0	20

Lab Sample ID: 880-35681-A-38-B MS

Matrix: Solid

Analysis Batch: 67006

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	14600		4970	19150		mg/Kg		92	90 - 110

Lab Sample ID: 880-35681-A-38-C MSD

Matrix: Solid

Analysis Batch: 67006

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	14600		4970	19140		mg/Kg		92	90 - 110	0	20

Eurofins Carlsbad

QC Association Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

GC VOA

Analysis Batch: 67021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Total/NA	Solid	8021B	67061
890-5610-2	BH 23-03 2'	Total/NA	Solid	8021B	67061
890-5610-3	BH 23-03 4'	Total/NA	Solid	8021B	67061
890-5610-4	BH 23-01 0'	Total/NA	Solid	8021B	67061
890-5610-5	BH 23-01 2'	Total/NA	Solid	8021B	67061
890-5610-6	BH 23-08 0'	Total/NA	Solid	8021B	67061
890-5610-7	BH 23-08 2'	Total/NA	Solid	8021B	67061
890-5610-8	BH 23-08 4'	Total/NA	Solid	8021B	67061
MB 880-67061/5-A	Method Blank	Total/NA	Solid	8021B	67061
MB 880-67094/5-A	Method Blank	Total/NA	Solid	8021B	67094
LCS 880-67061/1-A	Lab Control Sample	Total/NA	Solid	8021B	67061
LCSD 880-67061/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	67061
880-35797-A-81-B MS	Matrix Spike	Total/NA	Solid	8021B	67061
880-35797-A-81-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	67061

Prep Batch: 67061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Total/NA	Solid	5035	
890-5610-2	BH 23-03 2'	Total/NA	Solid	5035	
890-5610-3	BH 23-03 4'	Total/NA	Solid	5035	
890-5610-4	BH 23-01 0'	Total/NA	Solid	5035	
890-5610-5	BH 23-01 2'	Total/NA	Solid	5035	
890-5610-6	BH 23-08 0'	Total/NA	Solid	5035	
890-5610-7	BH 23-08 2'	Total/NA	Solid	5035	
890-5610-8	BH 23-08 4'	Total/NA	Solid	5035	
MB 880-67061/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-67061/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-67061/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-35797-A-81-B MS	Matrix Spike	Total/NA	Solid	5035	
880-35797-A-81-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 67094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-67094/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 67297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Total/NA	Solid	Total BTEX	
890-5610-2	BH 23-03 2'	Total/NA	Solid	Total BTEX	
890-5610-3	BH 23-03 4'	Total/NA	Solid	Total BTEX	
890-5610-4	BH 23-01 0'	Total/NA	Solid	Total BTEX	
890-5610-5	BH 23-01 2'	Total/NA	Solid	Total BTEX	
890-5610-6	BH 23-08 0'	Total/NA	Solid	Total BTEX	
890-5610-7	BH 23-08 2'	Total/NA	Solid	Total BTEX	
890-5610-8	BH 23-08 4'	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 67028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

GC Semi VOA (Continued)

Prep Batch: 67028 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-2	BH 23-03 2'	Total/NA	Solid	8015NM Prep	
890-5610-3	BH 23-03 4'	Total/NA	Solid	8015NM Prep	
890-5610-4	BH 23-01 0'	Total/NA	Solid	8015NM Prep	
890-5610-5	BH 23-01 2'	Total/NA	Solid	8015NM Prep	
890-5610-6	BH 23-08 0'	Total/NA	Solid	8015NM Prep	
890-5610-7	BH 23-08 2'	Total/NA	Solid	8015NM Prep	
890-5610-8	BH 23-08 4'	Total/NA	Solid	8015NM Prep	
MB 880-67028/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-67028/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-67028/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-35343-A-1-G MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-35343-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 67152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Total/NA	Solid	8015B NM	67028
890-5610-2	BH 23-03 2'	Total/NA	Solid	8015B NM	67028
890-5610-3	BH 23-03 4'	Total/NA	Solid	8015B NM	67028
890-5610-4	BH 23-01 0'	Total/NA	Solid	8015B NM	67028
890-5610-5	BH 23-01 2'	Total/NA	Solid	8015B NM	67028
890-5610-6	BH 23-08 0'	Total/NA	Solid	8015B NM	67028
890-5610-7	BH 23-08 2'	Total/NA	Solid	8015B NM	67028
890-5610-8	BH 23-08 4'	Total/NA	Solid	8015B NM	67028
MB 880-67028/1-A	Method Blank	Total/NA	Solid	8015B NM	67028
LCS 880-67028/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	67028
LCSD 880-67028/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	67028
880-35343-A-1-G MS	Matrix Spike	Total/NA	Solid	8015B NM	67028
880-35343-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	67028

Analysis Batch: 67310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Total/NA	Solid	8015 NM	
890-5610-2	BH 23-03 2'	Total/NA	Solid	8015 NM	
890-5610-3	BH 23-03 4'	Total/NA	Solid	8015 NM	
890-5610-4	BH 23-01 0'	Total/NA	Solid	8015 NM	
890-5610-5	BH 23-01 2'	Total/NA	Solid	8015 NM	
890-5610-6	BH 23-08 0'	Total/NA	Solid	8015 NM	
890-5610-7	BH 23-08 2'	Total/NA	Solid	8015 NM	
890-5610-8	BH 23-08 4'	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 66791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-4	BH 23-01 0'	Soluble	Solid	DI Leach	
890-5610-5	BH 23-01 2'	Soluble	Solid	DI Leach	
890-5610-6	BH 23-08 0'	Soluble	Solid	DI Leach	
890-5610-7	BH 23-08 2'	Soluble	Solid	DI Leach	
890-5610-8	BH 23-08 4'	Soluble	Solid	DI Leach	
MB 880-66791/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-66791/2-A	Lab Control Sample	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

HPLC/IC (Continued)

Leach Batch: 66791 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-66791/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-35571-A-8-D MS	Matrix Spike	Soluble	Solid	DI Leach	
880-35571-A-8-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
880-35649-A-4-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-35649-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 66928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-4	BH 23-01 0'	Soluble	Solid	300.0	66791
890-5610-5	BH 23-01 2'	Soluble	Solid	300.0	66791
890-5610-6	BH 23-08 0'	Soluble	Solid	300.0	66791
890-5610-7	BH 23-08 2'	Soluble	Solid	300.0	66791
890-5610-8	BH 23-08 4'	Soluble	Solid	300.0	66791
MB 880-66791/1-A	Method Blank	Soluble	Solid	300.0	66791
LCS 880-66791/2-A	Lab Control Sample	Soluble	Solid	300.0	66791
LCSD 880-66791/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	66791
880-35571-A-8-D MS	Matrix Spike	Soluble	Solid	300.0	66791
880-35571-A-8-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	66791
880-35649-A-4-B MS	Matrix Spike	Soluble	Solid	300.0	66791
880-35649-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	66791

Leach Batch: 66983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Soluble	Solid	DI Leach	
890-5610-2	BH 23-03 2'	Soluble	Solid	DI Leach	
890-5610-3	BH 23-03 4'	Soluble	Solid	DI Leach	
MB 880-66983/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-66983/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-66983/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-35681-A-38-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-35681-A-38-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 67006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5610-1	BH 23-03 0'	Soluble	Solid	300.0	66983
890-5610-2	BH 23-03 2'	Soluble	Solid	300.0	66983
890-5610-3	BH 23-03 4'	Soluble	Solid	300.0	66983
MB 880-66983/1-A	Method Blank	Soluble	Solid	300.0	66983
LCS 880-66983/2-A	Lab Control Sample	Soluble	Solid	300.0	66983
LCSD 880-66983/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	66983
880-35681-A-38-B MS	Matrix Spike	Soluble	Solid	300.0	66983
880-35681-A-38-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	66983

Lab Chronicle

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-03 0'
Date Collected: 11/08/23 09:00
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 15:30	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 15:30	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 14:55	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 14:55	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	66983	11/14/23 12:01	CH	EET MID
Soluble	Analysis	300.0		20	50 mL	50 mL	67006	11/14/23 20:38	CH	EET MID

Client Sample ID: BH 23-03 2'
Date Collected: 11/08/23 09:05
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 15:50	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 15:50	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 15:16	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 15:16	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	66983	11/14/23 12:01	CH	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	67006	11/14/23 20:44	CH	EET MID

Client Sample ID: BH 23-03 4'
Date Collected: 11/08/23 09:10
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 16:11	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 16:11	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 15:37	SM	EET MID
Total/NA	Prep	8015NM Prep			9.98 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 15:37	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	66983	11/14/23 12:01	CH	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	67006	11/14/23 21:04	CH	EET MID

Client Sample ID: BH 23-01 0'
Date Collected: 11/09/23 09:00
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 18:02	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 18:02	AJ	EET MID

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Lab Chronicle

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-01 0'
Date Collected: 11/09/23 09:00
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			67310	11/16/23 15:58	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 15:58	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	66791	11/13/23 08:05	CH	EET MID
Soluble	Analysis	300.0		1			66928	11/14/23 10:44	CH	EET MID

Client Sample ID: BH 23-01 2'
Date Collected: 11/09/23 09:05
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 18:22	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 18:22	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 16:19	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 16:19	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	66791	11/13/23 08:05	CH	EET MID
Soluble	Analysis	300.0		1			66928	11/14/23 10:49	CH	EET MID

Client Sample ID: BH 23-08 0'
Date Collected: 11/09/23 09:10
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 18:42	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 18:42	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 16:40	SM	EET MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 16:40	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	66791	11/13/23 08:05	CH	EET MID
Soluble	Analysis	300.0		1			66928	11/14/23 14:23	CH	EET MID

Client Sample ID: BH 23-08 2'
Date Collected: 11/09/23 09:15
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 19:03	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 19:03	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 17:01	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 17:01	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Client Sample ID: BH 23-08 2'
Date Collected: 11/09/23 09:15
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	66791	11/13/23 08:05	CH	EET MID
Soluble	Analysis	300.0		10			66928	11/14/23 14:29	CH	EET MID

Client Sample ID: BH 23-08 4'
Date Collected: 11/09/23 09:20
Date Received: 11/09/23 15:44

Lab Sample ID: 890-5610-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	67061	11/15/23 11:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67021	11/16/23 19:23	SM	EET MID
Total/NA	Analysis	Total BTEX		1			67297	11/16/23 19:23	AJ	EET MID
Total/NA	Analysis	8015 NM		1			67310	11/16/23 17:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	67028	11/15/23 09:52	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67152	11/16/23 17:22	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	66791	11/13/23 08:05	CH	EET MID
Soluble	Analysis	300.0		1			66928	11/14/23 11:06	CH	EET MID

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

Accreditation/Certification Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Vertex
Project/Site: PLU 29 WEST BIG SINKS

Job ID: 890-5610-1
SDG: 23E-05485

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5610-1	BH 23-03 0'	Solid	11/08/23 09:00	11/09/23 15:44	0'
890-5610-2	BH 23-03 2'	Solid	11/08/23 09:05	11/09/23 15:44	2'
890-5610-3	BH 23-03 4'	Solid	11/08/23 09:10	11/09/23 15:44	4'
890-5610-4	BH 23-01 0'	Solid	11/09/23 09:00	11/09/23 15:44	0'
890-5610-5	BH 23-01 2'	Solid	11/09/23 09:05	11/09/23 15:44	2'
890-5610-6	BH 23-08 0'	Solid	11/09/23 09:10	11/09/23 15:44	0'
890-5610-7	BH 23-08 2'	Solid	11/09/23 09:15	11/09/23 15:44	2'
890-5610-8	BH 23-08 4'	Solid	11/09/23 09:20	11/09/23 15:44	4'



Environment Testing

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 502-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3445, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No:

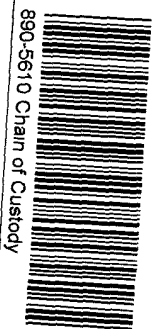
www.xenco.com Page of

Project Manager:	Chance Dixon	Bill to: (if different)	Barret Green
Company Name:	Vortex	Company Name:	XTD
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:		Email:	cdixon@vortex.ca

Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables:	EDD <input type="checkbox"/> Adapt <input type="checkbox"/> Other: <input type="checkbox"/>

Project Name:	PLU 89 West Big Sink	Turn Around		Pres. Code	
Project Number:	73E-05485	<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush			
Project Location:	Hammer View	Due Date:			
Sample's Name:	Hammer View	TAT starts the day received by the lab, if received by 4:30pm			
PO #:					
SAMPLE RECEIPT	Temp Blank: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Wet Ice: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Samples Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Thermometer ID:	TM001		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Correction Factor:	-0.2		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Temperature Reading	4.4		
Total Containers:		Corrected Temperature:	4.5		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	ANALYSIS REQUEST	Preservative Codes	Sample Comments
EH23-043	0'	5.1	9:00		1		CL	DI Water, H ₂ O	
BH23-03	2'		9:05				BTEX	MeOH, Me	
BH23-03	4'		9:10				TPH	HCL, HC	
BH23-01	0'	11	9:05					H ₂ SO ₄ , H ₂	
BH23-01	2'		9:05					H ₃ PO ₄ , HP	
BH23-08	0'		9:10					NaHSO ₄ , NABIS	
BH23-08	2'		9:15					Na ₂ S ₂ O ₃ , NaSO ₃	
BH23-08	4'		9:20					Zn Acetate+NaOH, Zn	
								NaOH+Ascorbic Acid, SAPC	



890-5610 Chain of Custody

Total 2007/6010 2008/6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471

Note: Signature of this document and relinquishment of sample constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Hammer View	Barret Green	11/9			

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-5610-1

SDG Number: 23E-05485

Login Number: 5610
List Number: 1
Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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.	N/A	Refer to Job Narrative for details.
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: 890-5610-1

SDG Number: 23E-05485

Login Number: 5610

List Number: 2

Creator: Rodriguez, Leticia

List Source: Eurofins Midland

List Creation: 11/13/23 09:24 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	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chance Dixon
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 11/29/2023 11:53:34 AM

JOB DESCRIPTION

PLU #29 WEST BIG SINKS
23E-05485

JOB NUMBER

890-5632-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220



Eurofins Carlsbad

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
11/29/2023 11:53:34 AM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Laboratory Job ID: 890-5632-1
SDG: 23E-05485

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Definitions/Glossary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Job ID: 890-5632-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-5632-1**

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 11/15/2023 8:34 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 0.2°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH 23 - 13 0' (890-5632-1) and BH 23 - 13 1.5' (890-5632-2).

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-67568 and analytical batch 880-67637 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.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-67741 and analytical batch 880-67809 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.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-5666-A-21-C). 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 880-67231 and analytical batch 880-67245 was outside the upper control limits.

Method 8015MOD_NM: Batch preparation batch 880-67231 and analytical batch 880-67245 is reported without a matrix spike/matrix spike duplicate (MS/MSD). The batch MS/MSD was originally performed on another client's sample, and this test was canceled at client request. This MS/MSD result does not have immediate bearing on any samples except for the actual sample spiked. The associated laboratory control sample (LCS) met acceptance criteria and provides long-term precision and accuracy for this batch.

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 #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Client Sample ID: BH 23 - 13 0'

Lab Sample ID: 890-5632-1

Date Collected: 11/14/23 09:30

Matrix: Solid

Date Received: 11/15/23 08:34

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		11/27/23 11:00	11/28/23 11:55	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/27/23 11:00	11/28/23 11:55	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/27/23 11:00	11/28/23 11:55	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/27/23 11:00	11/28/23 11:55	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/27/23 11:00	11/28/23 11:55	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/27/23 11:00	11/28/23 11:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130	11/27/23 11:00	11/28/23 11:55	1
1,4-Difluorobenzene (Surr)	71		70 - 130	11/27/23 11:00	11/28/23 11:55	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/28/23 11:55	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7	mg/Kg			11/17/23 22:24	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	<49.7	U	49.7	mg/Kg		11/16/23 16:02	11/17/23 22:24	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7	mg/Kg		11/16/23 16:02	11/17/23 22:24	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		11/16/23 16:02	11/17/23 22:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	11/16/23 16:02	11/17/23 22:24	1
o-Terphenyl	110		70 - 130	11/16/23 16:02	11/17/23 22:24	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	39.1		4.97	mg/Kg			11/17/23 12:57	1

Client Sample ID: BH 23 - 13 1.5'

Lab Sample ID: 890-5632-2

Date Collected: 11/14/23 09:45

Matrix: Solid

Date Received: 11/15/23 08:34

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		11/21/23 14:33	11/22/23 16:21	1
Toluene	<0.00202	U	0.00202	mg/Kg		11/21/23 14:33	11/22/23 16:21	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		11/21/23 14:33	11/22/23 16:21	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		11/21/23 14:33	11/22/23 16:21	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		11/21/23 14:33	11/22/23 16:21	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		11/21/23 14:33	11/22/23 16:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	11/21/23 14:33	11/22/23 16:21	1
1,4-Difluorobenzene (Surr)	77		70 - 130	11/21/23 14:33	11/22/23 16:21	1

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Client Sample ID: BH 23 - 13 1.5'

Lab Sample ID: 890-5632-2

Date Collected: 11/14/23 09:45

Matrix: Solid

Date Received: 11/15/23 08:34

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			11/22/23 16:21	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			11/17/23 22:46	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	<49.9	U	49.9	mg/Kg		11/16/23 16:02	11/17/23 22:46	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		11/16/23 16:02	11/17/23 22:46	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		11/16/23 16:02	11/17/23 22:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130	11/16/23 16:02	11/17/23 22:46	1
o-Terphenyl	105		70 - 130	11/16/23 16:02	11/17/23 22:46	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	51.6		5.05	mg/Kg			11/17/23 13:02	1

Surrogate Summary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-5632-1	BH 23 - 13 0'	96	71
890-5632-2	BH 23 - 13 1.5'	89	77
890-5632-A-1-F MS	890-5632-A-1-F MS	105	106
890-5632-A-1-G MSD	890-5632-A-1-G MSD	103	103
890-5666-A-21-A MS	Matrix Spike	90	84
890-5666-A-21-B MSD	Matrix Spike Duplicate	123	101
LCS 880-67568/1-A	Lab Control Sample	104	104
LCS 880-67741/1-A	Lab Control Sample	109	100
LCSD 880-67568/2-A	Lab Control Sample Dup	102	105
LCSD 880-67741/2-A	Lab Control Sample Dup	113	100
MB 880-67568/5-A	Method Blank	71	88
MB 880-67741/5-A	Method Blank	79	84
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-5632-1	BH 23 - 13 0'	100	110
890-5632-2	BH 23 - 13 1.5'	100	105
LCS 880-67231/2-A	Lab Control Sample	93	107
LCSD 880-67231/3-A	Lab Control Sample Dup	90	103
MB 880-67231/1-A	Method Blank	115	133 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1	OTPH1
890-5635-A-5-C MS	Matrix Spike		
890-5635-A-5-D MSD	Matrix Spike Duplicate		
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

Eurofins Carlsbad

QC Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-67568/5-A

Matrix: Solid

Analysis Batch: 67637

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67568

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/21/23 14:33	11/22/23 15:38	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/21/23 14:33	11/22/23 15:38	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/21/23 14:33	11/22/23 15:38	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		11/21/23 14:33	11/22/23 15:38	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/21/23 14:33	11/22/23 15:38	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		11/21/23 14:33	11/22/23 15:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	71		70 - 130	11/21/23 14:33	11/22/23 15:38	1
1,4-Difluorobenzene (Surr)	88		70 - 130	11/21/23 14:33	11/22/23 15:38	1

Lab Sample ID: LCS 880-67568/1-A

Matrix: Solid

Analysis Batch: 67637

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08403		mg/Kg		84	70 - 130
Toluene	0.100	0.08136		mg/Kg		81	70 - 130
Ethylbenzene	0.100	0.08783		mg/Kg		88	70 - 130
m-Xylene & p-Xylene	0.200	0.1813		mg/Kg		91	70 - 130
o-Xylene	0.100	0.08648		mg/Kg		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-67568/2-A

Matrix: Solid

Analysis Batch: 67637

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 67568

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08384		mg/Kg		84	70 - 130	0	35
Toluene	0.100	0.07787		mg/Kg		78	70 - 130	4	35
Ethylbenzene	0.100	0.08232		mg/Kg		82	70 - 130	6	35
m-Xylene & p-Xylene	0.200	0.1701		mg/Kg		85	70 - 130	6	35
o-Xylene	0.100	0.08106		mg/Kg		81	70 - 130	6	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 890-5632-A-1-F MS

Matrix: Solid

Analysis Batch: 67637

Client Sample ID: 890-5632-A-1-F MS

Prep Type: Total/NA

Prep Batch: 67568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0264	F1	0.0990	0.08324	F1	mg/Kg		57	70 - 130
Toluene	0.0663	F1	0.0990	0.07497	F1	mg/Kg		9	70 - 130

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QC Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

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

Lab Sample ID: 890-5632-A-1-F MS

Matrix: Solid

Analysis Batch: 67637

Client Sample ID: 890-5632-A-1-F MS

Prep Type: Total/NA

Prep Batch: 67568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	0.0201	F1	0.0990	0.07512	F1	mg/Kg		56	70 - 130
m-Xylene & p-Xylene	0.0523	F1	0.198	0.1535	F1	mg/Kg		51	70 - 130
o-Xylene	0.0181	F1	0.0990	0.07435	F1	mg/Kg		57	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-5632-A-1-G MSD

Matrix: Solid

Analysis Batch: 67637

Client Sample ID: 890-5632-A-1-G MSD

Prep Type: Total/NA

Prep Batch: 67568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0264	F1	0.101	0.07268	F1	mg/Kg		46	70 - 130	14	35
Toluene	0.0663	F1	0.101	0.06436	F1	mg/Kg		-2	70 - 130	15	35
Ethylbenzene	0.0201	F1	0.101	0.06294	F1	mg/Kg		43	70 - 130	18	35
m-Xylene & p-Xylene	0.0523	F1	0.202	0.1282	F1	mg/Kg		38	70 - 130	18	35
o-Xylene	0.0181	F1	0.101	0.06264	F1	mg/Kg		44	70 - 130	17	35

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: MB 880-67741/5-A

Matrix: Solid

Analysis Batch: 67809

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67741

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/27/23 11:00	11/28/23 11:13	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/27/23 11:00	11/28/23 11:13	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/27/23 11:00	11/28/23 11:13	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		11/27/23 11:00	11/28/23 11:13	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/27/23 11:00	11/28/23 11:13	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		11/27/23 11:00	11/28/23 11:13	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130	11/27/23 11:00	11/28/23 11:13	1
1,4-Difluorobenzene (Surr)	84		70 - 130	11/27/23 11:00	11/28/23 11:13	1

Lab Sample ID: LCS 880-67741/1-A

Matrix: Solid

Analysis Batch: 67809

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08598		mg/Kg		86	70 - 130
Toluene	0.100	0.08396		mg/Kg		84	70 - 130
Ethylbenzene	0.100	0.09073		mg/Kg		91	70 - 130
m-Xylene & p-Xylene	0.200	0.1862		mg/Kg		93	70 - 130

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QC Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

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

Lab Sample ID: LCS 880-67741/1-A

Matrix: Solid

Analysis Batch: 67809

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
o-Xylene	0.100	0.09278		mg/Kg		93	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: LCSD 880-67741/2-A

Matrix: Solid

Analysis Batch: 67809

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 67741

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.07910		mg/Kg		79	70 - 130	8	35
Toluene	0.100	0.07830		mg/Kg		78	70 - 130	7	35
Ethylbenzene	0.100	0.08506		mg/Kg		85	70 - 130	6	35
m-Xylene & p-Xylene	0.200	0.1736		mg/Kg		87	70 - 130	7	35
o-Xylene	0.100	0.08534		mg/Kg		85	70 - 130	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: 890-5666-A-21-A MS

Matrix: Solid

Analysis Batch: 67809

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 67741

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199		0.0996	0.04428	F1	mg/Kg		28	70 - 130
Toluene	<0.00199		0.0996	0.04536	F1	mg/Kg		-52	70 - 130
Ethylbenzene	<0.00199		0.0996	0.04729	F1	mg/Kg		23	70 - 130
m-Xylene & p-Xylene	<0.00398		0.199	0.08896	F1	mg/Kg		13	70 - 130
o-Xylene	<0.00199		0.0996	0.04647	F1	mg/Kg		18	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		70 - 130
1,4-Difluorobenzene (Surr)	84		70 - 130

Lab Sample ID: 890-5666-A-21-B MSD

Matrix: Solid

Analysis Batch: 67809

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 67741

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U F1 F2	0.0990	0.06350	F2 F1	mg/Kg		64	70 - 130	36	35
Toluene	<0.00199	U F1	0.0990	0.06178	F1	mg/Kg		62	70 - 130	31	35
Ethylbenzene	<0.00199	U F1 F2	0.0990	0.07379	F2	mg/Kg		75	70 - 130	44	35
m-Xylene & p-Xylene	<0.00398	U F1 F2	0.198	0.1495	F2	mg/Kg		75	70 - 130	51	35
o-Xylene	<0.00199	U F1 F2	0.0990	0.07229	F2	mg/Kg		73	70 - 130	43	35

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QC Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

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

Lab Sample ID: 890-5666-A-21-B MSD
Matrix: Solid
Analysis Batch: 67809

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 67741

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	123		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

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

Lab Sample ID: MB 880-67231/1-A
Matrix: Solid
Analysis Batch: 67245

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 67231

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/16/23 16:02	11/17/23 18:53	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/16/23 16:02	11/17/23 18:53	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/16/23 16:02	11/17/23 18:53	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1-Chlorooctane	115		70 - 130	11/16/23 16:02	11/17/23 18:53	1
o-Terphenyl	133	S1+	70 - 130	11/16/23 16:02	11/17/23 18:53	1

Lab Sample ID: LCS 880-67231/2-A
Matrix: Solid
Analysis Batch: 67245

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 67231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1023		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	1000	877.8		mg/Kg		88	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1-Chlorooctane	93		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: LCSD 880-67231/3-A
Matrix: Solid
Analysis Batch: 67245

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 67231

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1068		mg/Kg		107	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	1000	937.0		mg/Kg		94	70 - 130	7	20

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
1-Chlorooctane	90		70 - 130
o-Terphenyl	103		70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

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

Lab Sample ID: 890-5635-A-5-C MS
Matrix: Solid
Analysis Batch: 67245

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 67231

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1010	1185		mg/Kg			
Diesel Range Organics (Over C10-C28)			1010	895.9		mg/Kg			
		MS	MS						
Surrogate	%Recovery	Qualifier	Limits						
1-Chlorooctane									
o-Terphenyl									

Lab Sample ID: 890-5635-A-5-D MSD
Matrix: Solid
Analysis Batch: 67245

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 67231

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			1010	1209		mg/Kg					
Diesel Range Organics (Over C10-C28)			1010	913.5		mg/Kg					
		MSD	MSD								
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane											
o-Terphenyl											

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-67161/1-A
Matrix: Solid
Analysis Batch: 67234

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			11/17/23 11:43	1

Lab Sample ID: LCS 880-67161/2-A
Matrix: Solid
Analysis Batch: 67234

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	248.7		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-67161/3-A
Matrix: Solid
Analysis Batch: 67234

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	249.5		mg/Kg		100	90 - 110	0	20

QC Sample Results

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-5631-A-1-B MS
Matrix: Solid
Analysis Batch: 67234

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	46.0		249	292.6		mg/Kg		99	90 - 110		

Lab Sample ID: 890-5631-A-1-C MSD
Matrix: Solid
Analysis Batch: 67234

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	46.0		249	294.0		mg/Kg		100	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

GC VOA

Prep Batch: 67568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-2	BH 23 - 13 1.5'	Total/NA	Solid	5035	
MB 880-67568/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-67568/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-67568/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5632-A-1-F MS	890-5632-A-1-F MS	Total/NA	Solid	5035	
890-5632-A-1-G MSD	890-5632-A-1-G MSD	Total/NA	Solid	5035	

Analysis Batch: 67637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-2	BH 23 - 13 1.5'	Total/NA	Solid	8021B	67568
MB 880-67568/5-A	Method Blank	Total/NA	Solid	8021B	67568
LCS 880-67568/1-A	Lab Control Sample	Total/NA	Solid	8021B	67568
LCSD 880-67568/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	67568
890-5632-A-1-F MS	890-5632-A-1-F MS	Total/NA	Solid	8021B	67568
890-5632-A-1-G MSD	890-5632-A-1-G MSD	Total/NA	Solid	8021B	67568

Prep Batch: 67741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Total/NA	Solid	5035	
MB 880-67741/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-67741/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-67741/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5666-A-21-A MS	Matrix Spike	Total/NA	Solid	5035	
890-5666-A-21-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 67764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Total/NA	Solid	Total BTEX	
890-5632-2	BH 23 - 13 1.5'	Total/NA	Solid	Total BTEX	

Analysis Batch: 67809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Total/NA	Solid	8021B	67741
MB 880-67741/5-A	Method Blank	Total/NA	Solid	8021B	67741
LCS 880-67741/1-A	Lab Control Sample	Total/NA	Solid	8021B	67741
LCSD 880-67741/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	67741
890-5666-A-21-A MS	Matrix Spike	Total/NA	Solid	8021B	67741
890-5666-A-21-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	67741

GC Semi VOA

Prep Batch: 67231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Total/NA	Solid	8015NM Prep	
890-5632-2	BH 23 - 13 1.5'	Total/NA	Solid	8015NM Prep	
MB 880-67231/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-67231/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-67231/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-5635-A-5-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-5635-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

GC Semi VOA

Analysis Batch: 67245

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Total/NA	Solid	8015B NM	67231
890-5632-2	BH 23 - 13 1.5'	Total/NA	Solid	8015B NM	67231
MB 880-67231/1-A	Method Blank	Total/NA	Solid	8015B NM	67231
LCS 880-67231/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	67231
LCSD 880-67231/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	67231
890-5635-A-5-C MS	Matrix Spike	Total/NA	Solid	8015B NM	67231
890-5635-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	67231

Analysis Batch: 67446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Total/NA	Solid	8015 NM	
890-5632-2	BH 23 - 13 1.5'	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 67161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Soluble	Solid	DI Leach	
890-5632-2	BH 23 - 13 1.5'	Soluble	Solid	DI Leach	
MB 880-67161/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-67161/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-67161/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5631-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-5631-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 67234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5632-1	BH 23 - 13 0'	Soluble	Solid	300.0	67161
890-5632-2	BH 23 - 13 1.5'	Soluble	Solid	300.0	67161
MB 880-67161/1-A	Method Blank	Soluble	Solid	300.0	67161
LCS 880-67161/2-A	Lab Control Sample	Soluble	Solid	300.0	67161
LCSD 880-67161/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	67161
890-5631-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	67161
890-5631-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	67161

Lab Chronicle

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Client Sample ID: BH 23 - 13 0'

Lab Sample ID: 890-5632-1

Date Collected: 11/14/23 09:30

Matrix: Solid

Date Received: 11/15/23 08:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	67741	11/27/23 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67809	11/28/23 11:55	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			67764	11/28/23 11:55	SM	EET MID
Total/NA	Analysis	8015 NM		1			67446	11/17/23 22:24	SM	EET MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	67231	11/16/23 16:02	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67245	11/17/23 22:24	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	67161	11/16/23 11:00	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	67234	11/17/23 12:57	SMC	EET MID

Client Sample ID: BH 23 - 13 1.5'

Lab Sample ID: 890-5632-2

Date Collected: 11/14/23 09:45

Matrix: Solid

Date Received: 11/15/23 08:34

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	67568	11/21/23 14:33	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67637	11/22/23 16:21	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			67764	11/22/23 16:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			67446	11/17/23 22:46	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	67231	11/16/23 16:02	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67245	11/17/23 22:46	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	67161	11/16/23 11:00	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	67234	11/17/23 13:02	SMC	EET MID

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

Accreditation/Certification Summary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Vertex
Project/Site: PLU #29 WEST BIG SINKS

Job ID: 890-5632-1
SDG: 23E-05485

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
890-5632-1	BH 23 - 13 0'	Solid	11/14/23 09:30	11/15/23 08:34
890-5632-2	BH 23 - 13 1.5'	Solid	11/14/23 09:45	11/15/23 08:34

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3333
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Environment Testing
Xenco

Work Order No:

Page ____ of ____
www.xenco.com

Project Manager:	Chance Dixon		Bill to: (if different)	Barret Green	
Company Name:	Vertex		Company Name:	XTO	
Address:			Address:		
City, State ZIP:			City, State ZIP:		
Phone:			Email:	cdixon@vertex.ca	

Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PAP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting:	Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables:	EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:		Turn Around		ANALYSIS REQUEST										Preservative Codes			
Project Number:		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush												None: NO DI Water: H ₂ O			
Project Location:		Due Date:												Cool MeOH: Me			
Sampler's Name:		TAT starts the day received by the lab, if received by 4:30pm												C HNO ₃ : HN			
PO #:														H ₂ NaOH: Na			
SAMPLE RECEIPT				Temp Blank:		Yes No		Wet Ice:		Yes No							
Samples Received Intact:				Yes No		Thermometer ID:				Yes No							
Cooler Custody Seals:				Yes No		Correction Factor:				Yes No							
Sample Custody Seals:				Yes No		Temperature Reading:				Yes No							
Total Containers:				Corrected Temperature:						Yes No							
Sample Identification		Date Sampled	Time Sampled	Depth	# of								Sample Comments				
BH23-13	8'	5/11/24	9:30	1	Comp								Zn Acetate+NaOH: Zn				
BH23-13	3.5'	↓	9:45	↓									NaOH+Ascorbic Acid: SAPC				

Total	200.7 / 6010	200.8 / 6020:	8RCRA Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Tl	Sn	U	V	Zn		
Circle Method(s) and Metal(s) to be analyzed				TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471																												

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A retention of sample and a charge of \$45.00 will be levied to the client for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated in writing.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	<i>Hunter Klein</i>	<i>[Signature]</i>	11-14	<i>[Signature]</i>	<i>[Signature]</i>	
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Revised Date: 08/25/2020 Rev. 2020.2



Environment Testing

Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
 Midland, TX (432) 704-5440, San Antonio, TX (210) 505-3334
 El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199



890-5632 Chain of Custody

Work Order Comments

Program: ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐

State of Project: ☐ Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐

Reporting: ☐ Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐

Deliverables: ☐ EDD ☐ ADAPT ☐ Other

Project Manager: **Chance Dixon**

Company Name: **Vertex**

Address: **23E-05485**

City, State Zip: **Midland, TX 79701**

Phone: **806-794-1296**

Bill to: (if different) **Vertex**

Company Name: **Vertex**

Address: **23E-05485**

City, State Zip: **Midland, TX 79701**

Email: **cdixon@vertex.ca**

Project Name: PLU 29 West BigSinks		Turn Around		Pres. Code		ANALYSIS REQUEST		Preservative Codes	
Project Number	Project Location	Temp Blank	Wet Ice	Yes	No	Yes	No	None	NO
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	DI Water	H₂O
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	Cool: Cool	MeOH: Me
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	HCL: HC	HNO₃: HN
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	H₂SO₄: H₂	NaOH: Na
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	H₃PO₄: HP	NaHSO₄: NABIS
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	Na₂S₂O₃: NaSO₃	Zn Acetate+NaOH: Zn
23E-05485	Midland, TX	Yes	No	Yes	No	Yes	No	NaOH+Ascorbic Acid: SAPC	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Chance Dixon	Chance Dixon	11-14
Chance Dixon	Chance Dixon	11-14
Chance Dixon	Chance Dixon	11-14

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-5632-1

SDG Number: 23E-05485

Login Number: 5632

List Number: 1

Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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.	N/A	Refer to Job Narrative for details.
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: 890-5632-1
SDG Number: 23E-05485

Login Number: 5632
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 11/16/23 11:01 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	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chance Dixon
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 11/30/2023 2:42:17 PM

JOB DESCRIPTION

PLU 29 BIG SINKS CTB
23E-05935

JOB NUMBER

890-5683-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
11/30/2023 2:42:17 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Laboratory Job ID: 890-5683-1
SDG: 23E-05935

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Definitions/Glossary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Job ID: 890-5683-1

Laboratory: Eurofins Carlsbad

Narrative**Job Narrative
890-5683-1**

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 11/27/2023 3:55 PM. 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 -0.6°C

Receipt Exceptions

The following samples were received and analyzed from an unpreserved bulk soil jar: BH 23 -14 0' (890-5683-1), BH 23 -14 2' (890-5683-2), BH 23 -15 0' (890-5683-3) and BH 23 -15 2' (890-5683-4).

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-67907 and analytical batch 880-67899 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.

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-67907 and analytical batch 880-67899 was outside the upper control limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (890-5669-A-1-G). 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 880-67878 and analytical batch 880-67889 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: BH 23 -14 2' (890-5683-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: The method blank for preparation batch 880-67878 and analytical batch 880-67889 contained Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-67878 and analytical batch 880-67889 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10.

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

HPLC/IC

Case Narrative

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Job ID: 890-5683-1 (Continued)

Laboratory: Eurofins Carlsbad (Continued)

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

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Client Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Client Sample ID: BH 23 -14 0'

Lab Sample ID: 890-5683-1

Date Collected: 11/21/23 12:00

Matrix: Solid

Date Received: 11/27/23 15:55

Sample Depth: 0'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/29/23 23:40	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/29/23 23:40	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/29/23 23:40	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/29/23 10:24	11/29/23 23:40	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/29/23 23:40	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/29/23 10:24	11/29/23 23:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	11/29/23 10:24	11/29/23 23:40	1
1,4-Difluorobenzene (Surr)	119		70 - 130	11/29/23 10:24	11/29/23 23:40	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/29/23 23:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.3	U	50.3	mg/Kg			11/29/23 21:58	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	<50.3	U *1	50.3	mg/Kg		11/29/23 13:43	11/29/23 21:58	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		11/29/23 13:43	11/29/23 21:58	1
Oil Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		11/29/23 13:43	11/29/23 21:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	125		70 - 130	11/29/23 13:43	11/29/23 21:58	1
o-Terphenyl	107		70 - 130	11/29/23 13:43	11/29/23 21:58	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.07		5.05	mg/Kg			11/30/23 00:38	1

Client Sample ID: BH 23 -14 2'

Lab Sample ID: 890-5683-2

Date Collected: 11/21/23 12:05

Matrix: Solid

Date Received: 11/27/23 15:55

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/30/23 00:00	1
Toluene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/30/23 00:00	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/30/23 00:00	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		11/29/23 10:24	11/30/23 00:00	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		11/29/23 10:24	11/30/23 00:00	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		11/29/23 10:24	11/30/23 00:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	11/29/23 10:24	11/30/23 00:00	1

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Client Sample ID: BH 23 -14 2'

Lab Sample ID: 890-5683-2

Date Collected: 11/21/23 12:05

Matrix: Solid

Date Received: 11/27/23 15:55

Sample Depth: 2'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	120		70 - 130	11/29/23 10:24	11/30/23 00:00	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/30/23 00:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.4	U	50.4	mg/Kg			11/29/23 22:20	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	<50.4	U *1	50.4	mg/Kg		11/29/23 13:43	11/29/23 22:20	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4	mg/Kg		11/29/23 13:43	11/29/23 22:20	1
Oil Range Organics (Over C28-C36)	<50.4	U	50.4	mg/Kg		11/29/23 13:43	11/29/23 22:20	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	134	S1+	70 - 130			11/29/23 13:43	11/29/23 22:20	1
o-Terphenyl	113		70 - 130			11/29/23 13:43	11/29/23 22:20	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.02	U	5.02	mg/Kg			11/30/23 00:43	1

Client Sample ID: BH 23 -15 0'

Lab Sample ID: 890-5683-3

Date Collected: 11/21/23 12:09

Matrix: Solid

Date Received: 11/27/23 15:55

Sample Depth: 0'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/30/23 00:21	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/30/23 00:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/30/23 00:21	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		11/29/23 10:24	11/30/23 00:21	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/30/23 00:21	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		11/29/23 10:24	11/30/23 00:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	11/29/23 10:24	11/30/23 00:21	1
1,4-Difluorobenzene (Surr)	124		70 - 130	11/29/23 10:24	11/30/23 00:21	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			11/30/23 00:21	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.1	U	50.1	mg/Kg			11/29/23 22:41	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Client Sample ID: BH 23 -15 0'

Lab Sample ID: 890-5683-3

Date Collected: 11/21/23 12:09

Matrix: Solid

Date Received: 11/27/23 15:55

Sample Depth: 0'

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	<50.1	U *1	50.1	mg/Kg		11/29/23 13:43	11/29/23 22:41	1
Diesel Range Organics (Over C10-C28)	<50.1	U	50.1	mg/Kg		11/29/23 13:43	11/29/23 22:41	1
Oil Range Organics (Over C28-C36)	<50.1	U	50.1	mg/Kg		11/29/23 13:43	11/29/23 22:41	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130			11/29/23 13:43	11/29/23 22:41	1
o-Terphenyl	103		70 - 130			11/29/23 13:43	11/29/23 22:41	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			11/30/23 00:49	1

Client Sample ID: BH 23 -15 2'

Lab Sample ID: 890-5683-4

Date Collected: 11/21/23 12:11

Matrix: Solid

Date Received: 11/27/23 15:55

Sample Depth: 2'

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		11/29/23 10:24	11/30/23 00:41	1
Toluene	<0.00201	U	0.00201	mg/Kg		11/29/23 10:24	11/30/23 00:41	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		11/29/23 10:24	11/30/23 00:41	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		11/29/23 10:24	11/30/23 00:41	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		11/29/23 10:24	11/30/23 00:41	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		11/29/23 10:24	11/30/23 00:41	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130			11/29/23 10:24	11/30/23 00:41	1
1,4-Difluorobenzene (Surr)	113		70 - 130			11/29/23 10:24	11/30/23 00:41	1

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			11/30/23 00:41	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.7	U	49.7	mg/Kg			11/29/23 23:04	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	<49.7	U *1	49.7	mg/Kg		11/29/23 13:43	11/29/23 23:04	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7	mg/Kg		11/29/23 13:43	11/29/23 23:04	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		11/29/23 13:43	11/29/23 23:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130			11/29/23 13:43	11/29/23 23:04	1
o-Terphenyl	100		70 - 130			11/29/23 13:43	11/29/23 23:04	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Client Sample ID: BH 23 -15 2'
Date Collected: 11/21/23 12:11
Date Received: 11/27/23 15:55
Sample Depth: 2'

Lab Sample ID: 890-5683-4
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	5.27		4.95	mg/Kg			11/30/23 00:54	1	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Surrogate Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-5669-A-1-E MS	Matrix Spike	104	108
890-5669-A-1-F MSD	Matrix Spike Duplicate	112	96
890-5683-1	BH 23 -14 0'	98	119
890-5683-2	BH 23 -14 2'	101	120
890-5683-3	BH 23 -15 0'	104	124
890-5683-4	BH 23 -15 2'	102	113
LCS 880-67907/1-A	Lab Control Sample	86	106
LCSD 880-67907/2-A	Lab Control Sample Dup	88	101
MB 880-67907/5-A	Method Blank	101	138 S1+
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-36155-A-21-D MS	Matrix Spike	120	93
880-36155-A-21-E MSD	Matrix Spike Duplicate	126	87
890-5683-1	BH 23 -14 0'	125	107
890-5683-2	BH 23 -14 2'	134 S1+	113
890-5683-3	BH 23 -15 0'	119	103
890-5683-4	BH 23 -15 2'	112	100
LCS 880-67878/2-A	Lab Control Sample	86	92
LCSD 880-67878/3-A	Lab Control Sample Dup	116	114
MB 880-67878/1-A	Method Blank	144 S1+	139 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-67907/5-A

Matrix: Solid

Analysis Batch: 67899

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67907

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/29/23 17:15	1
Toluene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/29/23 17:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/29/23 17:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		11/29/23 10:24	11/29/23 17:15	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		11/29/23 10:24	11/29/23 17:15	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		11/29/23 10:24	11/29/23 17:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	11/29/23 10:24	11/29/23 17:15	1
1,4-Difluorobenzene (Surr)	138	S1+	70 - 130	11/29/23 10:24	11/29/23 17:15	1

Lab Sample ID: LCS 880-67907/1-A

Matrix: Solid

Analysis Batch: 67899

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67907

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.08364		mg/Kg		84	70 - 130
Toluene	0.100	0.08172		mg/Kg		82	70 - 130
Ethylbenzene	0.100	0.07370		mg/Kg		74	70 - 130
m-Xylene & p-Xylene	0.200	0.1640		mg/Kg		82	70 - 130
o-Xylene	0.100	0.08002		mg/Kg		80	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: LCSD 880-67907/2-A

Matrix: Solid

Analysis Batch: 67899

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 67907

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08388		mg/Kg		84	70 - 130	0	35
Toluene	0.100	0.07696		mg/Kg		77	70 - 130	6	35
Ethylbenzene	0.100	0.07429		mg/Kg		74	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.1578		mg/Kg		79	70 - 130	4	35
o-Xylene	0.100	0.07676		mg/Kg		77	70 - 130	4	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 890-5669-A-1-E MS

Matrix: Solid

Analysis Batch: 67899

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 67907

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U F1	0.0996	0.06867	F1	mg/Kg		69	70 - 130
Toluene	<0.00200	U F1	0.0996	0.05365	F1	mg/Kg		54	70 - 130

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

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

Lab Sample ID: 890-5669-A-1-E MS

Matrix: Solid

Analysis Batch: 67899

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 67907

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U F1	0.0996	0.05484	F1	mg/Kg		55	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.199	0.1452		mg/Kg		73	70 - 130
o-Xylene	<0.00200	U	0.0996	0.07326		mg/Kg		74	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	104		70 - 130						
1,4-Difluorobenzene (Surr)	108		70 - 130						

Lab Sample ID: 890-5669-A-1-F MSD

Matrix: Solid

Analysis Batch: 67899

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 67907

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F1	0.0994	0.07184		mg/Kg		72	70 - 130	5	35
Toluene	<0.00200	U F1	0.0994	0.06955		mg/Kg		70	70 - 130	26	35
Ethylbenzene	<0.00200	U F1	0.0994	0.07211		mg/Kg		73	70 - 130	27	35
m-Xylene & p-Xylene	<0.00399	U	0.199	0.1683		mg/Kg		85	70 - 130	15	35
o-Xylene	<0.00200	U	0.0994	0.08152		mg/Kg		82	70 - 130	11	35
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	112		70 - 130								
1,4-Difluorobenzene (Surr)	96		70 - 130								

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

Lab Sample ID: MB 880-67878/1-A

Matrix: Solid

Analysis Batch: 67889

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 67878

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		11/28/23 14:46	11/29/23 19:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		11/28/23 14:46	11/29/23 19:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		11/28/23 14:46	11/29/23 19:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits					
1-Chlorooctane	144	S1+	70 - 130					
o-Terphenyl	139	S1+	70 - 130					

Lab Sample ID: LCS 880-67878/2-A

Matrix: Solid

Analysis Batch: 67889

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 67878

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	870.5		mg/Kg		87	70 - 130
Diesel Range Organics (Over C10-C28)	1000	888.2		mg/Kg		89	70 - 130

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

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

Lab Sample ID: LCS 880-67878/2-A
Matrix: Solid
Analysis Batch: 67889

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 67878

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	86		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: LCSD 880-67878/3-A
Matrix: Solid
Analysis Batch: 67889

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 67878

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1085	*1	mg/Kg		109	70 - 130	22	20
Diesel Range Organics (Over C10-C28)	1000	1064		mg/Kg		106	70 - 130	18	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	116		70 - 130
o-Terphenyl	114		70 - 130

Lab Sample ID: 880-36155-A-21-D MS
Matrix: Solid
Analysis Batch: 67889

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 67878

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.7	U *1	1010	903.7		mg/Kg		87	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.7	U	1010	1292		mg/Kg		126	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	120		70 - 130
o-Terphenyl	93		70 - 130

Lab Sample ID: 880-36155-A-21-E MSD
Matrix: Solid
Analysis Batch: 67889

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 67878

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	<49.7	U *1	1010	889.0		mg/Kg		85	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.7	U	1010	1246		mg/Kg		122	70 - 130	4	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	126		70 - 130
o-Terphenyl	87		70 - 130

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-67832/1-A Matrix: Solid Analysis Batch: 67963										Client Sample ID: Method Blank Prep Type: Soluble	
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac			
Chloride	<5.00	U	5.00	mg/Kg			11/29/23 22:05	1			

Lab Sample ID: LCS 880-67832/2-A Matrix: Solid Analysis Batch: 67963										Client Sample ID: Lab Control Sample Prep Type: Soluble	
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	255.1		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-67832/3-A Matrix: Solid Analysis Batch: 67963										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	256.9		mg/Kg		103	90 - 110	1	20

Lab Sample ID: 880-36106-A-1-E MS Matrix: Solid Analysis Batch: 67963										Client Sample ID: Matrix Spike Prep Type: Soluble	
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	8.30		251	264.5		mg/Kg		102	90 - 110		

Lab Sample ID: 880-36106-A-1-F MSD Matrix: Solid Analysis Batch: 67963										Client Sample ID: Matrix Spike Duplicate Prep Type: Soluble	
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	8.30		251	265.3		mg/Kg		102	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

GC VOA

Analysis Batch: 67899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Total/NA	Solid	8021B	67907
890-5683-2	BH 23 -14 2'	Total/NA	Solid	8021B	67907
890-5683-3	BH 23 -15 0'	Total/NA	Solid	8021B	67907
890-5683-4	BH 23 -15 2'	Total/NA	Solid	8021B	67907
MB 880-67907/5-A	Method Blank	Total/NA	Solid	8021B	67907
LCS 880-67907/1-A	Lab Control Sample	Total/NA	Solid	8021B	67907
LCSD 880-67907/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	67907
890-5669-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	67907
890-5669-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	67907

Prep Batch: 67907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Total/NA	Solid	5035	
890-5683-2	BH 23 -14 2'	Total/NA	Solid	5035	
890-5683-3	BH 23 -15 0'	Total/NA	Solid	5035	
890-5683-4	BH 23 -15 2'	Total/NA	Solid	5035	
MB 880-67907/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-67907/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-67907/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5669-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
890-5669-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 68041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Total/NA	Solid	Total BTEX	
890-5683-2	BH 23 -14 2'	Total/NA	Solid	Total BTEX	
890-5683-3	BH 23 -15 0'	Total/NA	Solid	Total BTEX	
890-5683-4	BH 23 -15 2'	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 67878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Total/NA	Solid	8015NM Prep	
890-5683-2	BH 23 -14 2'	Total/NA	Solid	8015NM Prep	
890-5683-3	BH 23 -15 0'	Total/NA	Solid	8015NM Prep	
890-5683-4	BH 23 -15 2'	Total/NA	Solid	8015NM Prep	
MB 880-67878/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-67878/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-67878/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-36155-A-21-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-36155-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 67889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Total/NA	Solid	8015B NM	67878
890-5683-2	BH 23 -14 2'	Total/NA	Solid	8015B NM	67878
890-5683-3	BH 23 -15 0'	Total/NA	Solid	8015B NM	67878
890-5683-4	BH 23 -15 2'	Total/NA	Solid	8015B NM	67878
MB 880-67878/1-A	Method Blank	Total/NA	Solid	8015B NM	67878
LCS 880-67878/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	67878

Eurofins Carlsbad

QC Association Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

GC Semi VOA (Continued)

Analysis Batch: 67889 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-67878/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	67878
880-36155-A-21-D MS	Matrix Spike	Total/NA	Solid	8015B NM	67878
880-36155-A-21-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	67878

Analysis Batch: 68028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Total/NA	Solid	8015 NM	
890-5683-2	BH 23 -14 2'	Total/NA	Solid	8015 NM	
890-5683-3	BH 23 -15 0'	Total/NA	Solid	8015 NM	
890-5683-4	BH 23 -15 2'	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 67832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Soluble	Solid	DI Leach	
890-5683-2	BH 23 -14 2'	Soluble	Solid	DI Leach	
890-5683-3	BH 23 -15 0'	Soluble	Solid	DI Leach	
890-5683-4	BH 23 -15 2'	Soluble	Solid	DI Leach	
MB 880-67832/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-67832/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-67832/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-36106-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
880-36106-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 67963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5683-1	BH 23 -14 0'	Soluble	Solid	300.0	67832
890-5683-2	BH 23 -14 2'	Soluble	Solid	300.0	67832
890-5683-3	BH 23 -15 0'	Soluble	Solid	300.0	67832
890-5683-4	BH 23 -15 2'	Soluble	Solid	300.0	67832
MB 880-67832/1-A	Method Blank	Soluble	Solid	300.0	67832
LCS 880-67832/2-A	Lab Control Sample	Soluble	Solid	300.0	67832
LCSD 880-67832/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	67832
880-36106-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	67832
880-36106-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	67832

Lab Chronicle

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Client Sample ID: BH 23 -14 0'
Date Collected: 11/21/23 12:00
Date Received: 11/27/23 15:55

Lab Sample ID: 890-5683-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	67907	11/29/23 10:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67899	11/29/23 23:40	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			68041	11/29/23 23:40	SM	EET MID
Total/NA	Analysis	8015 NM		1			68028	11/29/23 21:58	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	67878	11/29/23 13:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67889	11/29/23 21:58	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	67832	11/28/23 10:47	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	67963	11/30/23 00:38	CH	EET MID

Client Sample ID: BH 23 -14 2'
Date Collected: 11/21/23 12:05
Date Received: 11/27/23 15:55

Lab Sample ID: 890-5683-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	67907	11/29/23 10:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67899	11/30/23 00:00	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			68041	11/30/23 00:00	SM	EET MID
Total/NA	Analysis	8015 NM		1			68028	11/29/23 22:20	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	67878	11/29/23 13:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67889	11/29/23 22:20	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	67832	11/28/23 10:47	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	67963	11/30/23 00:43	CH	EET MID

Client Sample ID: BH 23 -15 0'
Date Collected: 11/21/23 12:09
Date Received: 11/27/23 15:55

Lab Sample ID: 890-5683-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	67907	11/29/23 10:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67899	11/30/23 00:21	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			68041	11/30/23 00:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			68028	11/29/23 22:41	SM	EET MID
Total/NA	Prep	8015NM Prep			9.99 g	10 mL	67878	11/29/23 13:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67889	11/29/23 22:41	SM	EET MID
Soluble	Leach	DI Leach			5.00 g	50 mL	67832	11/28/23 10:47	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	67963	11/30/23 00:49	CH	EET MID

Client Sample ID: BH 23 -15 2'
Date Collected: 11/21/23 12:11
Date Received: 11/27/23 15:55

Lab Sample ID: 890-5683-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	67907	11/29/23 10:24	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	67899	11/30/23 00:41	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			68041	11/30/23 00:41	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Client Sample ID: BH 23 -15 2'

Lab Sample ID: 890-5683-4

Date Collected: 11/21/23 12:11

Matrix: Solid

Date Received: 11/27/23 15:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			68028	11/29/23 23:04	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	67878	11/29/23 13:43	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	67889	11/29/23 23:04	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	67832	11/28/23 10:47	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	67963	11/30/23 00:54	CH	EET MID

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

Accreditation/Certification Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS CTB

Job ID: 890-5683-1
SDG: 23E-05935

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5683-1	BH 23 -14 0'	Solid	11/21/23 12:00	11/27/23 15:55	0'
890-5683-2	BH 23 -14 2'	Solid	11/21/23 12:05	11/27/23 15:55	2'
890-5683-3	BH 23 -15 0'	Solid	11/21/23 12:09	11/27/23 15:55	0'
890-5683-4	BH 23 -15 2'	Solid	11/21/23 12:11	11/27/23 15:55	2'

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Chain of Custody



Environment Testing
Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: 1818831001

www.xenco.com Page of

Project Manager:	Chance Nixon	Bill to: (if different)	
Company Name:	varcu	Company Name:	Garnett Green
Address:	p.c.	Address:	on file
City, State ZIP:		City, State ZIP:	
Phone:		Email:	

Project Name:	PLU 29 Big Sink	Turn Around	
Project Number:	23E-05435	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush	
Project Location:	PLU 29 Big Sink STP	Due Date:	Dec 1
Sampler's Name:	Houston Est (07)	TAT starts the day received by the lab, if received by 4:30pm	
P.O. #:			

SAMPLE RECEIPT		Temp Blank:		Wet Ice:		Thermometer ID:		Correction Factor:		Temperature Reading:		Corrected Temperature:	
Samples Received Intact:	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	
Cooler Custody Seals:	Yes No	N/A											
Sample Custody Seals:	Yes No	N/A											
Total Containers:													

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grav Comp	# of Cont
BH23-14	soil	11-21-23	12:00	0'		4
BH23-14		12:03		2'		
BH23-15		12:09		0'		
BH23-15		12:11		2'		

Total	200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed	TCPL / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631 / 245.1 / 7470 / 7471																																

Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1. [Signature]	[Signature]	2
3. [Signature]		4
		6

Revised Date: 08/25/2020 Rev. 2000.2

Eurofine Carlebad

1089 N Canal St
Carlsbad NIM 88220
Phone 575-988-3199 Fax 575-988-3199

Chain of Custody Record



Equipment Testing

[illegible]

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-5683-1

SDG Number: 23E-05935

Login Number: 5683

List Number: 1

Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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.	N/A	Refer to Job Narrative for details.
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: 890-5683-1

SDG Number: 23E-05935

Login Number: 5683

List Number: 2

Creator: Kramer, Jessica

List Source: Eurofins Midland

List Creation: 11/29/23 11:34 AM

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").	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chance Dixon
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 12/12/2023 3:34:13 PM

JOB DESCRIPTION

PLU 29 BIG SINKS
23E - 05485

JOB NUMBER

890-5756-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

Eurofins Carlsbad

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization



Generated
12/12/2023 3:34:13 PM

Authorized for release by
Jessica Kramer, Project Manager
Jessica.Kramer@et.eurofinsus.com
(432)704-5440

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Laboratory Job ID: 890-5756-1
SDG: 23E - 05485

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Definitions/Glossary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Job ID: 890-5756-1

Laboratory: Eurofins Carlsbad

Narrative**Job Narrative
890-5756-1**

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 12/8/2023 8:00 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 1.0°C

Receipt Exceptions

The following sample was received and analyzed from an unpreserved bulk soil jar: BH23 - 03 4.5' (890-5756-1).

GC VOA

Method 8021B: Surrogate recovery for the following samples were outside control limits: (CCV 880-68756/2) and (LCS 880-68841/1-A). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: BH23 - 03 4.5' (890-5756-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following samples were outside control limits: (890-5745-A-1-C MS) and (890-5745-A-1-D MSD). 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 880-68852 and analytical batch 880-68750 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (CCV 880-68750/20), (CCV 880-68750/31), (CCV 880-68750/47), (CCV 880-68750/5), (CCV 880-68750/58) and (LCS 880-68852/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-68852 and analytical batch 880-68750 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.

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 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Client Sample ID: BH23 - 03 4.5'
Date Collected: 12/01/23 06:30
Date Received: 12/08/23 08:00
Sample Depth: 4.5'

Lab Sample ID: 890-5756-1
Matrix: Solid

Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 09:59	1	
Toluene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 09:59	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 09:59	1	
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		12/11/23 13:38	12/12/23 09:59	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 09:59	1	
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		12/11/23 13:38	12/12/23 09:59	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	174	S1+	70 - 130			12/11/23 13:38	12/12/23 09:59	1	
1,4-Difluorobenzene (Surr)	67	S1-	70 - 130			12/11/23 13:38	12/12/23 09:59	1	

Method: TAL SOP Total BTEX - Total BTEX Calculation									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00399	U	0.00399	mg/Kg			12/12/23 09:59	1	

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<50.0	U	50.0	mg/Kg			12/12/23 03:59	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	<50.0	U	50.0	mg/Kg		12/11/23 14:33	12/12/23 03:59	1	
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/11/23 14:33	12/12/23 03:59	1	
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/11/23 14:33	12/12/23 03:59	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
1-Chlorooctane	86		70 - 130			12/11/23 14:33	12/12/23 03:59	1	
o-Terphenyl	81		70 - 130			12/11/23 14:33	12/12/23 03:59	1	

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	<4.99	U	4.99	mg/Kg			12/11/23 18:50	1	

Surrogate Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-5745-A-1-C MS	Matrix Spike	167 S1+	154 S1+
890-5745-A-1-D MSD	Matrix Spike Duplicate	151 S1+	89
890-5756-1	BH23 - 03 4.5'	174 S1+	67 S1-
LCS 880-68841/1-A	Lab Control Sample	136 S1+	86
LCSD 880-68841/2-A	Lab Control Sample Dup	125	77
MB 880-68778/5-A	Method Blank	73	75
MB 880-68841/5-A	Method Blank	74	92
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-36743-A-7-B MS	Matrix Spike	93	90
880-36743-A-7-C MSD	Matrix Spike Duplicate	95	85
890-5756-1	BH23 - 03 4.5'	86	81
LCS 880-68852/2-A	Lab Control Sample	130	148 S1+
LCSD 880-68852/3-A	Lab Control Sample Dup	102	117
MB 880-68852/1-A	Method Blank	124	134 S1+
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-68778/5-A

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 68778

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/11/23 10:04	12/11/23 11:51	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/11/23 10:04	12/11/23 11:51	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/11/23 10:04	12/11/23 11:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/11/23 10:04	12/11/23 11:51	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/11/23 10:04	12/11/23 11:51	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/11/23 10:04	12/11/23 11:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		70 - 130	12/11/23 10:04	12/11/23 11:51	1
1,4-Difluorobenzene (Surr)	75		70 - 130	12/11/23 10:04	12/11/23 11:51	1

Lab Sample ID: MB 880-68841/5-A

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 68841

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 01:20	1
Toluene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 01:20	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 01:20	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		12/11/23 13:38	12/12/23 01:20	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		12/11/23 13:38	12/12/23 01:20	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		12/11/23 13:38	12/12/23 01:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		70 - 130	12/11/23 13:38	12/12/23 01:20	1
1,4-Difluorobenzene (Surr)	92		70 - 130	12/11/23 13:38	12/12/23 01:20	1

Lab Sample ID: LCS 880-68841/1-A

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 68841

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09705		mg/Kg		97	70 - 130
Toluene	0.100	0.1014		mg/Kg		101	70 - 130
Ethylbenzene	0.100	0.07841		mg/Kg		78	70 - 130
m-Xylene & p-Xylene	0.200	0.1920		mg/Kg		96	70 - 130
o-Xylene	0.100	0.1058		mg/Kg		106	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	136	S1+	70 - 130
1,4-Difluorobenzene (Surr)	86		70 - 130

Lab Sample ID: LCSD 880-68841/2-A

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 68841

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08638		mg/Kg		86	70 - 130	12	35

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

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

Lab Sample ID: LCSD 880-68841/2-A

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 68841

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits			
Toluene	0.100	0.1061		mg/Kg		106	70 - 130		5	35
Ethylbenzene	0.100	0.09885		mg/Kg		99	70 - 130		23	35
m-Xylene & p-Xylene	0.200	0.1787		mg/Kg		89	70 - 130		7	35
o-Xylene	0.100	0.09863		mg/Kg		99	70 - 130		7	35

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	125		70 - 130
1,4-Difluorobenzene (Surr)	77		70 - 130

Lab Sample ID: 890-5745-A-1-C MS

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 68841

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Benzene	<0.00199	U	0.0996	0.08256		mg/Kg		83	70 - 130	
Toluene	<0.00199	U	0.0996	0.09685		mg/Kg		97	70 - 130	
Ethylbenzene	<0.00199	U	0.0996	0.08965		mg/Kg		90	70 - 130	
m-Xylene & p-Xylene	<0.00398	U	0.199	0.2057		mg/Kg		103	70 - 130	
o-Xylene	<0.00199	U	0.0996	0.1012		mg/Kg		102	70 - 130	

Surrogate	MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	167	S1+	70 - 130
1,4-Difluorobenzene (Surr)	154	S1+	70 - 130

Lab Sample ID: 890-5745-A-1-D MSD

Matrix: Solid

Analysis Batch: 68756

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 68841

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
									Limits			
Benzene	<0.00199	U	0.0990	0.08316		mg/Kg		84	70 - 130		1	35
Toluene	<0.00199	U	0.0990	0.09553		mg/Kg		96	70 - 130		1	35
Ethylbenzene	<0.00199	U	0.0990	0.08776		mg/Kg		89	70 - 130		2	35
m-Xylene & p-Xylene	<0.00398	U	0.198	0.1742		mg/Kg		88	70 - 130		17	35
o-Xylene	<0.00199	U	0.0990	0.08344		mg/Kg		84	70 - 130		19	35

Surrogate	MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	151	S1+	70 - 130
1,4-Difluorobenzene (Surr)	89		70 - 130

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

Lab Sample ID: MB 880-68852/1-A

Matrix: Solid

Analysis Batch: 68750

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 68852

Analyte	MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		12/11/23 14:33	12/11/23 19:35	1

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

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

Lab Sample ID: MB 880-68852/1-A

Matrix: Solid

Analysis Batch: 68750

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 68852

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		12/11/23 14:33	12/11/23 19:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		12/11/23 14:33	12/11/23 19:35	1
Surrogate	MB	MB	Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
1-Chlorooctane	124		70 - 130			12/11/23 14:33	12/11/23 19:35	1
o-Terphenyl	134	S1+	70 - 130			12/11/23 14:33	12/11/23 19:35	1

Lab Sample ID: LCS 880-68852/2-A

Matrix: Solid

Analysis Batch: 68750

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 68852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Gasoline Range Organics (GRO)-C6-C10	1000	813.0		mg/Kg		81	70 - 130	
Diesel Range Organics (Over C10-C28)	1000	781.5		mg/Kg		78	70 - 130	
Surrogate		LCS	LCS					
		%Recovery	Qualifier					
1-Chlorooctane		130					70 - 130	
o-Terphenyl		148	S1+				70 - 130	

Lab Sample ID: LCSD 880-68852/3-A

Matrix: Solid

Analysis Batch: 68750

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 68852

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	877.4		mg/Kg		88	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	1000	910.4		mg/Kg		91	70 - 130	15	20
Surrogate		LCSD	LCSD						
		%Recovery	Qualifier						
1-Chlorooctane		102					70 - 130		
o-Terphenyl		117					70 - 130		

Lab Sample ID: 880-36743-A-7-B MS

Matrix: Solid

Analysis Batch: 68750

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 68852

Analyte	Sample	Sample	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
	Result	Qualifier								
Gasoline Range Organics (GRO)-C6-C10	<50.4	U F1	1000	701.6	F1	mg/Kg		68	70 - 130	
Diesel Range Organics (Over C10-C28)	<50.4	U F1	1000	722.3	F1	mg/Kg		68	70 - 130	
Surrogate	MS	MS								
	%Recovery	Qualifier								
1-Chlorooctane	93								70 - 130	
o-Terphenyl	90								70 - 130	

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QC Sample Results

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

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

Lab Sample ID: 880-36743-A-7-C MSD

Matrix: Solid

Analysis Batch: 68750

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 68852

	Sample	Sample	Spike	MSD	MSD			%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<50.4	U F1	1000	727.5		mg/Kg	-	71	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<50.4	U F1	1000	708.9	F1	mg/Kg		67	70 - 130	2	20
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	95		70 - 130								
o-Terphenyl	85		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-68794/1-A

Matrix: Solid

Analysis Batch: 68825

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Chloride	<5.00	U	5.00	mg/Kg			12/11/23 14:35	1

Lab Sample ID: LCS 880-68794/2-A

Matrix: Solid

Analysis Batch: 68825

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Chloride	250	255.4		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-68794/3-A

Matrix: Solid

Analysis Batch: 68825

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

			Spike	LCS D	LCS D				%Rec	RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride			250	253.3		mg/Kg		101	90 - 110	1	20

Lab Sample ID: 890-5744-A-2-C MS

Matrix: Solid

Analysis Batch: 68825

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec		
	Result	Qualifier	Added	Result	Qualifier				Limits		
Chloride	185		249	434.6		mg/Kg		100	90 - 110		

Lab Sample ID: 890-5744-A-2-D MSD

Matrix: Solid

Analysis Batch: 68825

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limits
Chloride	185		249	432.4		mg/Kg		100	90 - 110	1	20

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QC Association Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

GC VOA

Analysis Batch: 68756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Total/NA	Solid	8021B	68841
MB 880-68778/5-A	Method Blank	Total/NA	Solid	8021B	68778
MB 880-68841/5-A	Method Blank	Total/NA	Solid	8021B	68841
LCS 880-68841/1-A	Lab Control Sample	Total/NA	Solid	8021B	68841
LCSD 880-68841/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	68841
890-5745-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	68841
890-5745-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	68841

Prep Batch: 68778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-68778/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 68841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Total/NA	Solid	5035	
MB 880-68841/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-68841/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-68841/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-5745-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-5745-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 68941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 68750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Total/NA	Solid	8015B NM	68852
MB 880-68852/1-A	Method Blank	Total/NA	Solid	8015B NM	68852
LCS 880-68852/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	68852
LCSD 880-68852/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	68852
880-36743-A-7-B MS	Matrix Spike	Total/NA	Solid	8015B NM	68852
880-36743-A-7-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	68852

Prep Batch: 68852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Total/NA	Solid	8015NM Prep	
MB 880-68852/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-68852/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-68852/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-36743-A-7-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-36743-A-7-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 68905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Total/NA	Solid	8015 NM	

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QC Association Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

HPLC/IC

Leach Batch: 68794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Soluble	Solid	DI Leach	
MB 880-68794/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-68794/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-68794/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-5744-A-2-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-5744-A-2-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 68825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-5756-1	BH23 - 03 4.5'	Soluble	Solid	300.0	68794
MB 880-68794/1-A	Method Blank	Soluble	Solid	300.0	68794
LCS 880-68794/2-A	Lab Control Sample	Soluble	Solid	300.0	68794
LCSD 880-68794/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	68794
890-5744-A-2-C MS	Matrix Spike	Soluble	Solid	300.0	68794
890-5744-A-2-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	68794

Lab Chronicle

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Client Sample ID: BH23 - 03 4.5'

Date Collected: 12/01/23 06:30

Date Received: 12/08/23 08:00

Lab Sample ID: 890-5756-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	68841	12/11/23 13:38	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	68756	12/12/23 09:59	SM	EET MID
Total/NA	Analysis	Total BTEX		1			68941	12/12/23 09:59	SM	EET MID
Total/NA	Analysis	8015 NM		1			68905	12/12/23 03:59	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	68852	12/11/23 14:33	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	68750	12/12/23 03:59	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	68794	12/11/23 10:29	SA	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	68825	12/11/23 18:50	CH	EET MID

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

Accreditation/Certification Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-23-26	06-30-24
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
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

- ASTM = ASTM International
- EPA = US Environmental Protection Agency
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: Vertex
Project/Site: PLU 29 BIG SINKS

Job ID: 890-5756-1
SDG: 23E - 05485

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-5756-1	BH23 - 03 4.5'	Solid	12/01/23 06:30	12/08/23 08:00	4.5'

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3333
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Environment Testing

Xenco

Page ____ of ____
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Work Order No: 1818831001



Work Order Comments									
Program: UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>									
State of Project:									
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>									
Deliverables: EDD <input type="checkbox"/> ADaPT <input type="checkbox"/> Other:									

Project Manager:	Charles Dixon	Bill to: (if different)	Garrett Green
Company Name:	Vortex	Company Name:	X70
Address:	on file	Address:	on file
City, State ZIP:		City, State ZIP:	
Phone:		Email:	

[illegible]

Total	200.7 / 6010	200.8 / 6020:		8RCRA Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂	Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed					TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco. Its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of the client. The client agrees to indemnify Eurofins Xenco for any and all damages, including reasonable attorneys' fees, incurred by Eurofins Xenco in connection with the defense of any lawsuit or legal action brought by a third party against Eurofins Xenco or its affiliates or subcontractors. The client agrees to pay a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms are enforced unless previously negotiated in writing. The client agrees to pay a charge of \$25.00 for each sample analyzed and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms are enforced unless previously negotiated in writing.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1			8a 12-8	2		
3				4		
				6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-5756-1

SDG Number: 23E - 05485

Login Number: 5756

List Number: 1

Creator: Bruns, Shannon

List Source: Eurofins Carlsbad

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.	N/A	Refer to Job Narrative for details.
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: 890-5756-1
SDG Number: 23E - 05485

Login Number: 5756
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 12/11/23 08:54 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	

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

QUESTIONS

Action 301291

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:
	5380
	Action Number:
	301291
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2326151503
Incident Name	NAPP2326151503 PLU 29 BIG SINKS WEST CTB @ 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 29 BIG SINKS WEST CTB
Date Release Discovered	09/07/2023
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 Other (Specify) Produced Water Released: 13 BBL Recovered: 0 BBL Lost: 13 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)	Interior corrosion caused a pin hole on the Bulk 701 6" CS water line and released fluids to pad.

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QUESTIONS, Page 2

Action 301291

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:
	5380
	Action Number:
	301291
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	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.
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: 01/08/2024

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QUESTIONS, Page 3

Action 301291

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:
	5380
	Action Number:
	301291
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)	Less than or equal 25 (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 ½ and 1 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between ½ and 1 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Between ½ and 1 (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)	9920
TPH (GRO+DRO+MRO)	(EPA SW-846 Method 8015M)	0
GRO+DRO	(EPA SW-846 Method 8015M)	0
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	01/04/2024
On what date will (or did) the final sampling or liner inspection occur	01/04/2024
On what date will (or was) the remediation complete(d)	01/10/2024
What is the estimated surface area (in square feet) that will be reclaimed	3700
What is the estimated volume (in cubic yards) that will be reclaimed	175
What is the estimated surface area (in square feet) that will be remediated	3700
What is the estimated volume (in cubic yards) that will be remediated	175

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, Page 4

Action 301291

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:	5380
	Action Number:	301291
	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: Garrett Green Title: SHE Coordinator Email: garrett.green@exxonmobil.com Date: 01/08/2024
--	--

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, Page 5

Action 301291

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 301291
	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, Page 6

Action 301291

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID:
	5380
	Action Number:
	301291
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	308067
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	01/30/2024
What was the (estimated) number of samples that were to be gathered	7
What was the sampling surface area in square feet	1400

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 301291

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 301291
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	3/7/2024