General Information

NMOCD District:	District 2 – Artesia	Incident ID:	nAPP2334849928
Landowner:	Bureau of Land Management	RP Reference:	N/A
Client:	XTO Energy	Site Location:	Poker Lake Unit 342 Battery
Date:	May 24, 2024	Project #:	23E-06066
Client Contact:	Amy Ruth	Phone #:	432.661.0571
Vertex PM:	Sally Carttar	Phone #:	575.361.3561

Objective

The objective of the environmental remediation work plan is to identify exceedances found during the site assessment/characterization activity and propose an appropriate remediation technique to address the release at Poker Lake Unit 342 Battery. The release involved approximately 15 barrels of produced water discharged onto the pad due to an equipment failure. Approximately 15 barrels of produced water were recovered. Areas of environmental concern identified and delineated include the western and middle portion of the pad, north of the tank battery. An aerial photograph of the site with characterization locations and approximate area of release impact is presented on Figure 1 (Attachment 1). Closure criteria have been selected as per New Mexico Administrative Code 19.15.29. 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
DTGW – Depth to groundwater
TPH – Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)
BTEX – Benzene, toluene, ethylbenzene, and xylenes

Site Assessment/Characterization

Site characterization was started on February 2, 2024, and delineation was completed on May 7, 2024. An extension request was submitted on February 29, 2024, and New Mexico Oil Conservation Division approved an updated deadline of May 30, 2024. Correspondence regarding the extension is included in Attachment 3. A total of 12 sample points were established and 27 samples collected for field screening. Samples were obtained at various depths for horizontal and vertical delineation, but efforts with a hand auger hit refusal at 0.5 to 1 foot below ground surface at all sample points. Samples at the greatest lateral limits and the deepest vertical distance below closure criteria were submitted to the laboratory for analysis. In total, 27 samples were submitted to Eurofins Environmental Testing South Central in Albuquerque, New Mexico, for analysis. The sample locations are presented on Figure 1 (Attachment 1). Laboratory analysis results have been compared to the above noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 2). Laboratory data reports are included in Attachment 4. All applicable research as it pertains to closure criteria selection is presented in Attachment 5. Exceedances are identified in the table as bold with a grey background.

Proposed Remedial Activities

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation. Laboratory results from the site characterization were referenced to estimate the vertical and horizontal limits of the impacts and the volume of soil to be removed. Soil will be excavated to the extents of the known contamination or in 1-foot increments, whichever is less. Field screening will be utilized to confirm removal of contaminated soil below the applicable closure criteria. Contaminated soils will be stored on a 30-mil 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.

All 12 sample points established during delineation were on-pad. Exceedances to closure criteria were identified at multiple sample points on and around the west and central portion of the pad, north of the tank battery. Soil will be excavated at a starting depth of 1 foot around BH24-02 and BH24-10, which will be vertically delineated during excavation and will likely need to be excavated deeper. The rest of the planned excavation area will be excavated to a depth of 0.5 feet, as shown on Figure 1 (Attachment 1). Heavy equipment will be used to complete excavation in open areas and hand crews will be used to complete excavation next to equipment or lines that is deemed unsafe. A hydrovac truck will be utilized to identify lines in the excavation area. 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 85 cubic yards.**

Sample Point	Excavation Depth	Remediation Method
BH24-02	1'	Backhoe
BH24-10		Backhoe
BH24-04	0.5	Backhoe
BH24-06		Backhoe

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

_____ _____

Andrew Ludvik, B.Sc. Date
ENVIRONMENTAL TECHNICIAN, REPORTING

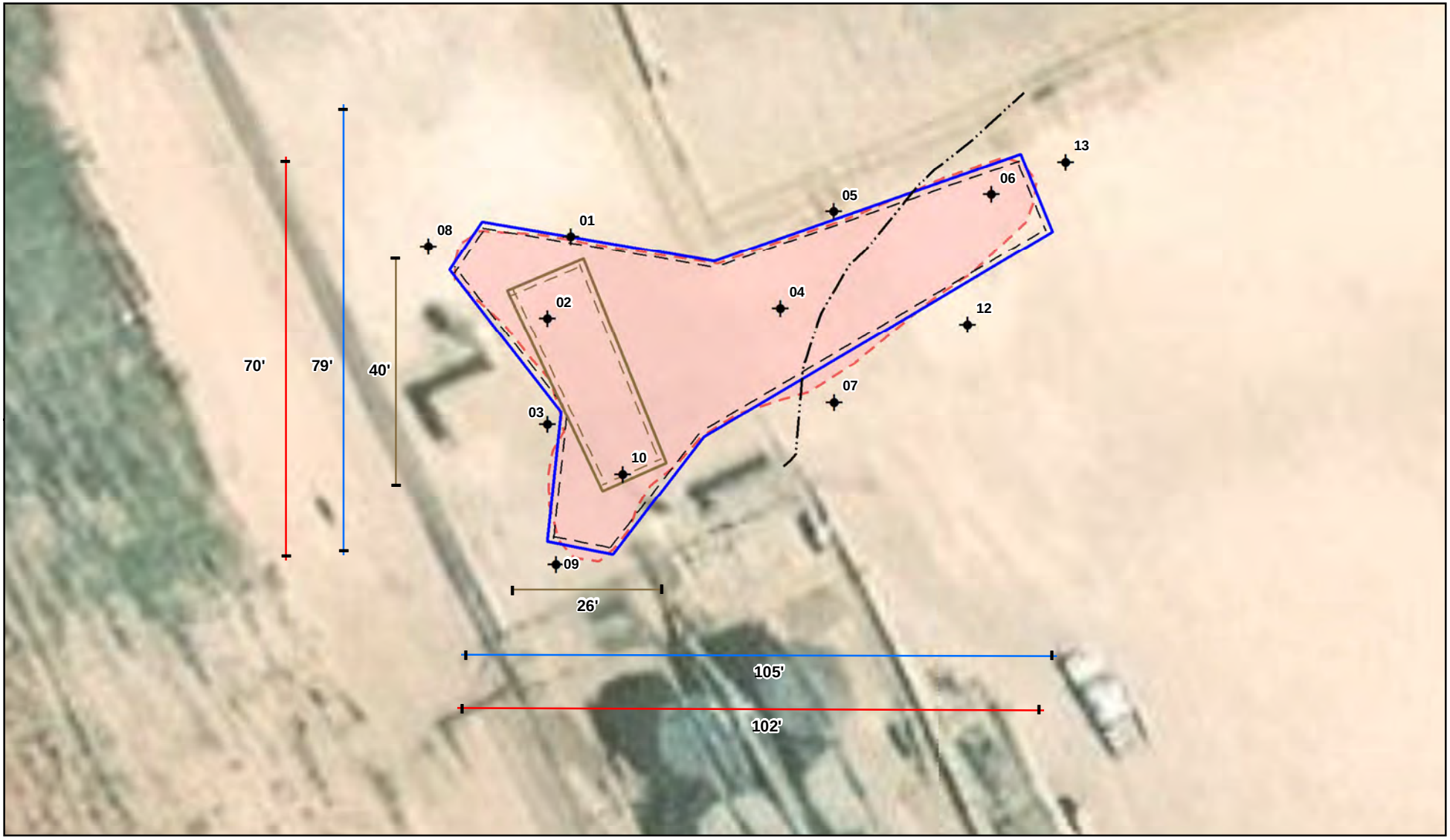
_____ _____

Sally Carttar, BA Date
PROJECT MANAGER, REPORT REVIEW

Attachments

Attachment 1. Characterization Sampling Site Schematic
Attachment 2. Field Screening and Laboratory Results Table
Attachment 3. Extension Request and Approval Correspondence
Attachment 4. Laboratory Data Reports and Chain of Custody Forms
Attachment 5. Closure Criteria Research

ATTACHMENT 1



Borehole (Prefixed by "BH24-")

Electrical Line (Underground)

Proposed Excavation to 0.5' bgs (~2,918 sq.ft.)

Proposed Excavation to 1' bgs (~516 sq.ft.)

Approximate Release Area (~2,826 sq.ft.)

VERTEX

0 10 20 ft

Map Center:
Lat/Long: 32.206842, -103.858676

NAD 1983 UTM Zone 13N
Date: May 24/24

N

Characterization Sampling Site Schematic
Poker Lake Unit 342 Battery

FIGURE:
1

XTO ENERGY

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

Note: Georeferenced image from Esri, 2023. Site features from GPS by Vertex Professional Services Ltd., 2024.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\XTO Energy\23E-06066 - PLU 342\Figure 1 Characterization Sampling Schematic (23E-06066)ID18294.mxd

ATTACHMENT 2

Client Name: XTO Energy
Site Name: Poker Lake Unit 342 Battery
NMOCD Tracking #: nAPP2334849928
Project #: 23E-06066
Lab Reports: 890-6118-1, 890-6119-1, 890-6150-1, 890-6149-1, 885-1475-1, 885-4188-1

Table 3. Initial Characterization Sample Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-01	0	February 5, 2024	ND	ND	ND	ND	ND	ND	ND	334
	0.5	February 5, 2024	ND	ND	ND	ND	ND	ND	ND	112
BH24-02	0	February 5, 2024	ND	ND	ND	ND	ND	ND	ND	**5,550**
	0.5	February 5, 2024	ND	ND	ND	ND	ND	ND	ND	**2,030**
	2	May 7, 2024	ND	ND	ND	ND	ND	ND	ND	ND
	4	May 7, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BH24-03	0	March 15, 2024	ND	ND	ND	ND	ND	ND	ND	73
	1	February 5, 2024	ND	ND	ND	ND	ND	ND	ND	41
BH24-04	0	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	**1250**
	0.5	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	161
BH24-05	0	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	72
	0.05	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	46
BH24-06	0	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	190
	0.05	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	152
BH24-07	0	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	54
	0.5	February 6, 2024	ND	ND	ND	ND	ND	ND	ND	38
BH24-08	0	February 7, 2024	ND	ND	ND	ND	ND	ND	ND	66
	0.5	February 7, 2024	ND	ND	ND	ND	ND	ND	ND	71
BH24-09	0	February 7, 2024	ND	ND	ND	ND	ND	ND	ND	110
	1	February 7, 2024	ND	ND	ND	ND	ND	ND	ND	93
BH24-10	0	February 8, 2024	ND	ND	ND	52.9	ND	52.9	52.9	**4680**
	1	February 8, 2024	ND	ND	ND	ND	ND	ND	ND	**643**
	2	May 7, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BH24-12	0	February 8, 2024	ND	ND	ND	ND	ND	ND	ND	64
	0.5	February 8, 2024	ND	ND	ND	ND	ND	ND	ND	78
BH24-13	0	February 8, 2024	ND	ND	ND	ND	ND	ND	ND	66
	0.5	February 8, 2024	ND	ND	ND	ND	ND	ND	ND	73

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

ATTACHMENT 3

XTO - Extension Request - Poker Lake Unit 342 - Incident Number nAPP2334849928

Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>

Fri 3/1/2024 10:19 AM

To:amy.ruth@exxonmobil.com <amy.ruth@exxonmobil.com>
Cc:alan.romero1@exxonmobil.com <alan.romero1@exxonmobil.com>;Sally Carttar <SCarttar@vertex.ca>;Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>;Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>;Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>

RE: Incident #**NAPP2334849928**

Amy,

Your request for a 90-day extension to **May 30th, 2024,** is approved. Please include this e-mail correspondence in the remediation and/or closure report.

Robert Hamlet • Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Wells, Shelly, EMNRD <Shelly.Wells@emnrd.nm.gov>
Sent: Thursday, February 29, 2024 2:59 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Subject: FW: [EXTERNAL] XTO - Extension Request - Poker Lake Unit 342 - Incident Number nAPP2334849928

From: Ruth, Amy <amy.ruth@exxonmobil.com>
Sent: Thursday, February 29, 2024 2:44 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>

Cc: Romero, Alan <alan.romero1@exxonmobil.com>; Sally Carttar <SCarttar@vertex.ca>
Subject: [EXTERNAL] XTO - Extension Request - Poker Lake Unit 342 - Incident Number nAPP2334849928

Good afternoon,

XTO is requesting an extension for the current deadline of March 6, 2024, to complete remedial activities and submitting a report required in 19.15.29.12.B.(1) NMAC at the PLU 342 nAPP2334849928). In order to complete all remedial activities and submit a report, XTO requests an extension until June 4, 2024.

Please contact me with any questions or concerns.

Respectfully,

Amy C. Ruth
Environmental Advisor
UOG Unconventional Permian/Delaware
amy.ruth@exxonmobil.com

XTO ENERGY, INC. – An ExxonMobil Subsidiary
3104 E. Greene Street | Carlsbad, NM 88220 | M: 432.661.0571

ATTACHMENT 4

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 3/6/2024 11:39:20 AM Revision 2

JOB DESCRIPTION

PLU 342
23E-06066

JOB NUMBER

890-6119-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

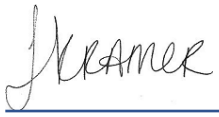
Eurofins Carlsbad

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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3/6/2024 11:39:20 AM
Revision 2

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

Client: Vertex
Project/Site: PLU 342

Laboratory Job ID: 890-6119-1
SDG: 23E-06066

Table of Contents

Definitions/Glossary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
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
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.
¤	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: PLU 342

Job ID: 890-6119-1

Job ID: 890-6119-1 Eurofins Carlsbad

Job Narrative
890-6119-1

REVISION

The report being provided is a revision of the original report sent on 2/19/2024. The report (revision 2) is being revised due to Per client email, requesting sample depths be added to the report.

Report revision history
Revision 1 - 2/21/2024 - Reason - Per client email, requesting project name change.

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 2/7/2024 8:53 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -1.2°C.

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: BH24-02 (890-6119-1), BH24-02 (890-6119-2), BH24-01 (890-6119-3), BH24-01 (890-6119-4), BH24-03 (890-6119-5) and BH24-03 (890-6119-6).

One or more containers for the following sample was received empty: BH24-03 (890-6119-5).

GC VOA
Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-73192 and analytical batch 880-73320 was outside the control limits.

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 880-72729 and analytical batch 880-73314 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: BH24-02 (890-6119-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

HPLC/IC
Method 300_ORGFM_28D - Soluble: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-72650 and analytical batch 880-72725 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.

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 342

Job ID: 890-6119-1
SDG: 23E-06066

Client Sample ID: BH24-02
Date Collected: 02/05/24 12:20
Date Received: 02/07/24 08:53
Sample Depth: 0'

Lab Sample ID: 890-6119-1
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		02/14/24 16:48	02/16/24 15:57	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 15:57	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 15:57	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		02/14/24 16:48	02/16/24 15:57	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 15:57	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		02/14/24 16:48	02/16/24 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*70 - 130*	*02/14/24 16:48*	*02/16/24 15:57*	*1*
1,4-Difluorobenzene (Surr)	*78*		*70 - 130*	*02/14/24 16:48*	*02/16/24 15:57*	*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			02/16/24 15:57	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2		mg/Kg			02/16/24 20:05	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	<50.2	U	50.2		mg/Kg		02/09/24 11:20	02/16/24 20:05	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2		mg/Kg		02/09/24 11:20	02/16/24 20:05	1
OII Range Organics (Over C28-C36)	<50.2	U	50.2		mg/Kg		02/09/24 11:20	02/16/24 20:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*131*	*S1+*	*70 - 130*	*02/09/24 11:20*	*02/16/24 20:05*	*1*
o-Terphenyl	*108*		*70 - 130*	*02/09/24 11:20*	*02/16/24 20:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5550**		49.8		mg/Kg			02/09/24 19:00	10

Client Sample ID: BH24-02
Date Collected: 02/05/24 12:30
Date Received: 02/07/24 08:53
Sample Depth: 0.5'

Lab Sample ID: 890-6119-2
Matrix: Solid

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		02/14/24 16:48	02/16/24 16:18	1
Toluene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:48	02/16/24 16:18	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:48	02/16/24 16:18	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		02/14/24 16:48	02/16/24 16:18	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:48	02/16/24 16:18	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		02/14/24 16:48	02/16/24 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*	*02/14/24 16:48*	*02/16/24 16:18*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Client Sample ID: BH24-02
Date Collected: 02/05/24 12:30
Date Received: 02/07/24 08:53
Sample Depth: 0.5'

Lab Sample ID: 890-6119-2
Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*02/14/24 16:48*	*02/16/24 16:18*	*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			02/16/24 16:18	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			02/16/24 21:09	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		02/09/24 11:20	02/16/24 21:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/09/24 11:20	02/16/24 21:09	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/09/24 11:20	02/16/24 21:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*127*		*70 - 130*	*02/09/24 11:20*	*02/16/24 21:09*	*1*
o-Terphenyl	*109*		*70 - 130*	*02/09/24 11:20*	*02/16/24 21:09*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2030**		25.2	mg/Kg			02/09/24 19:06	5

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:00
Date Received: 02/07/24 08:53
Sample Depth: 0'

Lab Sample ID: 890-6119-3
Matrix: Solid

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		02/14/24 16:48	02/16/24 16:38	1
Toluene	<0.00199	U	0.00199	mg/Kg		02/14/24 16:48	02/16/24 16:38	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		02/14/24 16:48	02/16/24 16:38	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/14/24 16:48	02/16/24 16:38	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		02/14/24 16:48	02/16/24 16:38	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/14/24 16:48	02/16/24 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*	*02/14/24 16:48*	*02/16/24 16:38*	*1*
1,4-Difluorobenzene (Surr)	*70*		*70 - 130*	*02/14/24 16:48*	*02/16/24 16:38*	*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			02/16/24 16:38	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			02/16/24 21:30	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:00
Date Received: 02/07/24 08:53
Sample Depth: 0'

Lab Sample ID: 890-6119-3
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		02/09/24 11:20	02/16/24 21:30	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/09/24 11:20	02/16/24 21:30	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/09/24 11:20	02/16/24 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*120*		*70 - 130*	*02/09/24 11:20*	*02/16/24 21:30*	*1*
o-Terphenyl	*105*		*70 - 130*	*02/09/24 11:20*	*02/16/24 21:30*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**334**		5.02		mg/Kg			02/09/24 19:12	1

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:10
Date Received: 02/07/24 08:53
Sample Depth: 0.5'

Lab Sample ID: 890-6119-4
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		02/14/24 16:48	02/16/24 16:59	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 16:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 16:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 16:59	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 16:59	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*77*		*70 - 130*	*02/14/24 16:48*	*02/16/24 16:59*	*1*
1,4-Difluorobenzene (Surr)	*71*		*70 - 130*	*02/14/24 16:48*	*02/16/24 16:59*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			02/16/24 16:59	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2		mg/Kg			02/16/24 21:51	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	<50.2	U	50.2		mg/Kg		02/09/24 11:20	02/16/24 21:51	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2		mg/Kg		02/09/24 11:20	02/16/24 21:51	1
Oil Range Organics (Over C28-C36)	<50.2	U	50.2		mg/Kg		02/09/24 11:20	02/16/24 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*124*		*70 - 130*	*02/09/24 11:20*	*02/16/24 21:51*	*1*
o-Terphenyl	*105*		*70 - 130*	*02/09/24 11:20*	*02/16/24 21:51*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:10
Date Received: 02/07/24 08:53
Sample Depth: 0.5'

Lab Sample ID: 890-6119-4
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	112		5.05		mg/Kg			02/09/24 19:19	1

Client Sample ID: BH24-03
Date Collected: 02/05/24 12:50
Date Received: 02/07/24 08:53
Sample Depth: 1'

Lab Sample ID: 890-6119-6
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		02/14/24 16:48	02/16/24 17:20	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 17:20	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 17:20	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 17:20	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 17:20	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 17:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*74*		*70 - 130*	*02/14/24 16:48*	*02/16/24 17:20*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*02/14/24 16:48*	*02/16/24 17:20*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400		mg/Kg			02/16/24 17:20	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			02/16/24 22:13	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		02/09/24 11:20	02/16/24 22:13	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4		mg/Kg		02/09/24 11:20	02/16/24 22:13	1
Oil Range Organics (Over C28-C36)	<50.4	U	50.4		mg/Kg		02/09/24 11:20	02/16/24 22:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*02/09/24 11:20*	*02/16/24 22:13*	*1*
o-Terphenyl	*88*		*70 - 130*	*02/09/24 11:20*	*02/16/24 22:13*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	41.4		5.04		mg/Kg			02/09/24 19:25	1

Surrogate Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-39033-A-2-C MS	Matrix Spike	116	122
880-39033-A-2-D MSD	Matrix Spike Duplicate	113	121
890-6119-1	BH24-02	78	78
890-6119-2	BH24-02	81	89
890-6119-3	BH24-01	80	70
890-6119-4	BH24-01	77	71
890-6119-6	BH24-03	74	93
LCS 880-73192/1-A	Lab Control Sample	112	120
LCSD 880-73192/2-A	Lab Control Sample Dup	112	120
MB 880-73192/5-A	Method Blank	66 S1-	98

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)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-6119-1	BH24-02	131 S1+	108
890-6119-1 MS	BH24-02	128	95
890-6119-1 MSD	BH24-02	119	89
890-6119-2	BH24-02	127	109
890-6119-3	BH24-01	120	105
890-6119-4	BH24-01	124	105
890-6119-6	BH24-03	108	88
LCS 880-72729/2-A	Lab Control Sample	105	117
LCSD 880-72729/3-A	Lab Control Sample Dup	106	107
MB 880-72729/1-A	Method Blank	271 S1+	242 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-73192/5-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73192

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 11:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*66*	*S1-*	*70 - 130*	*02/14/24 16:48*	*02/16/24 11:06*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*02/14/24 16:48*	*02/16/24 11:06*	*1*

Lab Sample ID: LCS 880-73192/1-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73192

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09329		mg/Kg		93	70 - 130		
Toluene			0.100	0.08754		mg/Kg		88	70 - 130		
Ethylbenzene			0.100	0.09520		mg/Kg		95	70 - 130		
m-Xylene & p-Xylene			0.200	0.2018		mg/Kg		101	70 - 130		
o-Xylene			0.100	0.09753		mg/Kg		98	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*120*		*70 - 130*

Lab Sample ID: LCSD 880-73192/2-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73192

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09399		mg/Kg		94	70 - 130	1	35
Toluene			0.100	0.08640		mg/Kg		86	70 - 130	1	35
Ethylbenzene			0.100	0.09818		mg/Kg		98	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.2054		mg/Kg		103	70 - 130	2	35
o-Xylene			0.100	0.09884		mg/Kg		99	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*120*		*70 - 130*

Lab Sample ID: 880-39033-A-2-C MS
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73192

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.100	0.09558		mg/Kg		95	70 - 130		
Toluene	<0.00199	U	0.100	0.09032		mg/Kg		90	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

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

Lab Sample ID: 880-39033-A-2-C MS
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73192

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.100	0.1022		mg/Kg		102	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2133		mg/Kg		106	70 - 130
o-Xylene	<0.00199	U	0.100	0.1035		mg/Kg		103	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*
1,4-Difluorobenzene (Surr)	*122*		*70 - 130*

Lab Sample ID: 880-39033-A-2-D MSD
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73192

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1046		mg/Kg		104	70 - 130	9	35
Toluene	<0.00199	U	0.101	0.09485		mg/Kg		94	70 - 130	5	35
Ethylbenzene	<0.00199	U	0.101	0.1090		mg/Kg		108	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.2261		mg/Kg		112	70 - 130	6	35
o-Xylene	<0.00199	U	0.101	0.1101		mg/Kg		109	70 - 130	6	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*
1,4-Difluorobenzene (Surr)	*121*		*70 - 130*

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

Lab Sample ID: MB 880-72729/1-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 72729

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		02/09/24 11:20	02/16/24 19:02	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/09/24 11:20	02/16/24 19:02	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/09/24 11:20	02/16/24 19:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*271*	*S1+*	*70 - 130*	*02/09/24 11:20*	*02/16/24 19:02*	*1*
o-Terphenyl	*242*	*S1+*	*70 - 130*	*02/09/24 11:20*	*02/16/24 19:02*	*1*

Lab Sample ID: LCS 880-72729/2-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 72729

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1024		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)			1000	930.8		mg/Kg		93	70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

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

Lab Sample ID: LCS 880-72729/2-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 72729

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: LCSD 880-72729/3-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 72729

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1018		mg/Kg		102	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	956.9		mg/Kg		96	70 - 130	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	106		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: 890-6119-1 MS
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: BH24-02
Prep Type: Total/NA
Prep Batch: 72729

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<50.2	U	1010	1139		mg/Kg		109	70 - 130
Diesel Range Organics (Over C10-C28)	<50.2	U	1010	1333		mg/Kg		129	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	128		70 - 130
o-Terphenyl	95		70 - 130

Lab Sample ID: 890-6119-1 MSD
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: BH24-02
Prep Type: Total/NA
Prep Batch: 72729

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	<50.2	U	1010	1006		mg/Kg		95	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	<50.2	U	1010	1241		mg/Kg		120	70 - 130	7	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	119		70 - 130
o-Terphenyl	89		70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-72650/1-A
Matrix: Solid
Analysis Batch: 72725

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			02/09/24 16:28	1

Lab Sample ID: LCS 880-72650/2-A
Matrix: Solid
Analysis Batch: 72725

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	254.4		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-72650/3-A
Matrix: Solid
Analysis Batch: 72725

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	264.2		mg/Kg		106	90 - 110	4	20

Lab Sample ID: 890-6117-A-11-B MS
Matrix: Solid
Analysis Batch: 72725

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	768	F1	1250	2129		mg/Kg		109	90 - 110		

Lab Sample ID: 890-6117-A-11-C MSD
Matrix: Solid
Analysis Batch: 72725

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	768	F1	1250	2186	F1	mg/Kg		113	90 - 110	3	20

Lab Sample ID: 890-6118-A-6-B MS
Matrix: Solid
Analysis Batch: 72725

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	152		252	383.5		mg/Kg		92	90 - 110		

Lab Sample ID: 890-6118-A-6-C MSD
Matrix: Solid
Analysis Batch: 72725

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	152		252	409.9		mg/Kg		103	90 - 110	7	20

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

GC VOA

Prep Batch: 73192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Total/NA	Solid	5035	
890-6119-2	BH24-02	Total/NA	Solid	5035	
890-6119-3	BH24-01	Total/NA	Solid	5035	
890-6119-4	BH24-01	Total/NA	Solid	5035	
890-6119-6	BH24-03	Total/NA	Solid	5035	
MB 880-73192/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73192/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73192/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-39033-A-2-C MS	Matrix Spike	Total/NA	Solid	5035	
880-39033-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 73320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Total/NA	Solid	8021B	73192
890-6119-2	BH24-02	Total/NA	Solid	8021B	73192
890-6119-3	BH24-01	Total/NA	Solid	8021B	73192
890-6119-4	BH24-01	Total/NA	Solid	8021B	73192
890-6119-6	BH24-03	Total/NA	Solid	8021B	73192
MB 880-73192/5-A	Method Blank	Total/NA	Solid	8021B	73192
LCS 880-73192/1-A	Lab Control Sample	Total/NA	Solid	8021B	73192
LCSD 880-73192/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73192
880-39033-A-2-C MS	Matrix Spike	Total/NA	Solid	8021B	73192
880-39033-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73192

Analysis Batch: 73586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Total/NA	Solid	Total BTEX	
890-6119-2	BH24-02	Total/NA	Solid	Total BTEX	
890-6119-3	BH24-01	Total/NA	Solid	Total BTEX	
890-6119-4	BH24-01	Total/NA	Solid	Total BTEX	
890-6119-6	BH24-03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 72729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Total/NA	Solid	8015NM Prep	
890-6119-2	BH24-02	Total/NA	Solid	8015NM Prep	
890-6119-3	BH24-01	Total/NA	Solid	8015NM Prep	
890-6119-4	BH24-01	Total/NA	Solid	8015NM Prep	
890-6119-6	BH24-03	Total/NA	Solid	8015NM Prep	
MB 880-72729/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-72729/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-72729/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6119-1 MS	BH24-02	Total/NA	Solid	8015NM Prep	
890-6119-1 MSD	BH24-02	Total/NA	Solid	8015NM Prep	

Analysis Batch: 73314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Total/NA	Solid	8015B NM	72729
890-6119-2	BH24-02	Total/NA	Solid	8015B NM	72729

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

GC Semi VOA (Continued)

Analysis Batch: 73314 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-3	BH24-01	Total/NA	Solid	8015B NM	72729
890-6119-4	BH24-01	Total/NA	Solid	8015B NM	72729
890-6119-6	BH24-03	Total/NA	Solid	8015B NM	72729
MB 880-72729/1-A	Method Blank	Total/NA	Solid	8015B NM	72729
LCS 880-72729/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	72729
LCSD 880-72729/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	72729
890-6119-1 MS	BH24-02	Total/NA	Solid	8015B NM	72729
890-6119-1 MSD	BH24-02	Total/NA	Solid	8015B NM	72729

Analysis Batch: 73531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Total/NA	Solid	8015 NM	
890-6119-2	BH24-02	Total/NA	Solid	8015 NM	
890-6119-3	BH24-01	Total/NA	Solid	8015 NM	
890-6119-4	BH24-01	Total/NA	Solid	8015 NM	
890-6119-6	BH24-03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 72650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Soluble	Solid	DI Leach	
890-6119-2	BH24-02	Soluble	Solid	DI Leach	
890-6119-3	BH24-01	Soluble	Solid	DI Leach	
890-6119-4	BH24-01	Soluble	Solid	DI Leach	
890-6119-6	BH24-03	Soluble	Solid	DI Leach	
MB 880-72650/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-72650/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-72650/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6117-A-11-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-6117-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-6118-A-6-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-6118-A-6-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 72725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6119-1	BH24-02	Soluble	Solid	300.0	72650
890-6119-2	BH24-02	Soluble	Solid	300.0	72650
890-6119-3	BH24-01	Soluble	Solid	300.0	72650
890-6119-4	BH24-01	Soluble	Solid	300.0	72650
890-6119-6	BH24-03	Soluble	Solid	300.0	72650
MB 880-72650/1-A	Method Blank	Soluble	Solid	300.0	72650
LCS 880-72650/2-A	Lab Control Sample	Soluble	Solid	300.0	72650
LCSD 880-72650/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	72650
890-6117-A-11-B MS	Matrix Spike	Soluble	Solid	300.0	72650
890-6117-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	72650
890-6118-A-6-B MS	Matrix Spike	Soluble	Solid	300.0	72650
890-6118-A-6-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	72650

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Client Sample ID: BH24-02
Date Collected: 02/05/24 12:20
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6119-1
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	73192	02/14/24 16:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/16/24 15:57	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73586	02/16/24 15:57	SM	EET MID
Total/NA	Analysis	8015 NM		1			73531	02/16/24 20:05	SM	EET MID
Total/NA	Prep	8015NM Prep			9.96 g	10 mL	72729	02/09/24 11:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 20:05	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		10			72725	02/09/24 19:00	CH	EET MID

Client Sample ID: BH24-02
Date Collected: 02/05/24 12:30
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6119-2
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	73192	02/14/24 16:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/16/24 16:18	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73586	02/16/24 16:18	SM	EET MID
Total/NA	Analysis	8015 NM		1			73531	02/16/24 21:09	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	72729	02/09/24 11:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 21:09	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		5			72725	02/09/24 19:06	CH	EET MID

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:00
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6119-3
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			5.03 g	5 mL	73192	02/14/24 16:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/16/24 16:38	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73586	02/16/24 16:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			73531	02/16/24 21:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	72729	02/09/24 11:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 21:30	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 19:12	CH	EET MID

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:10
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6119-4
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			5.00 g	5 mL	73192	02/14/24 16:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/16/24 16:59	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73586	02/16/24 16:59	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6119-1
SDG: 23E-06066

Client Sample ID: BH24-01
Date Collected: 02/05/24 12:10
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6119-4
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			73531	02/16/24 21:51	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	72729	02/09/24 11:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 21:51	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 19:19	CH	EET MID

Client Sample ID: BH24-03
Date Collected: 02/05/24 12:50
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6119-6
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			5.00 g	5 mL	73192	02/14/24 16:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/16/24 17:20	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73586	02/16/24 17:20	SM	EET MID
Total/NA	Analysis	8015 NM		1			73531	02/16/24 22:13	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	72729	02/09/24 11:20	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 22:13	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 19:25	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 342

Job ID: 890-6119-1
SDG: 23E-06066

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 342

Job ID: 890-6119-1
SDG: 23E-06066

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 342

Job ID: 890-6119-1
SDG: 23E-06066

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6119-1	BH24-02	Solid	02/05/24 12:20	02/07/24 08:53	0'
890-6119-2	BH24-02	Solid	02/05/24 12:30	02/07/24 08:53	0.5'
890-6119-3	BH24-01	Solid	02/05/24 12:00	02/07/24 08:53	0'
890-6119-4	BH24-01	Solid	02/05/24 12:10	02/07/24 08:53	0.5'
890-6119-6	BH24-03	Solid	02/05/24 12:50	02/07/24 08:53	1'

nAPP2334849927

Chain of Custody

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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: _____

6119

www.xenco.com Page 1 of 1

Project Manager:	Chance Dixon	Bill to: (if different)	Garrett Green
Company Name:	Vertex / XTO	Company Name:	XTO
Address:		Address:	
City, State ZIP:	on file	City, State ZIP:	on file
Phone:		Email:	

Project Name:	SRV 342
Project Number:	23E-06066
Project Location:	SRV 342
Sampler's Name:	Alejandro Cortez
PO #:	

Turn Around: (X) Routine ( ) Rush
Due Date:
TAT starts the day received by the lab, if received by 4:30pm

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	Yes No
Samples Received Intact:	(Yes) No	Thermometer ID:	Tungoo
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	-1.4
Total Containers:		Corrected Temperature:	-1.2

Work Order Comments
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Pres. Code	Parameters: BTEX (8021)	TPH (8015D)	
BH24-02	0'	Soil	2-5-24	12:20	0		1				
BH24-02	0.5'	Soil	2-5-24	12:30	0.5		1				
BH24-01	0'			12:00	0						
BH24-01	0.5'			12:10	0.5						
BH24-03	0'			12:40	0						
BH24-03	1'	V	V	12:50	1'	V	6		V	V	V

Preservative Codes
None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2SO_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

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 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 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
1		Burns 217	853	2		
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-6119-1
SDG Number: 23E-06066

Login Number: 6119
List Number: 1
Creator: Lopez, Abraham

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: 890-6119-1
SDG Number: 23E-06066

Login Number: 6119
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 02/08/24 11:21 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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ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

PLU 342
23E 06066

JOB NUMBER

890-6118-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

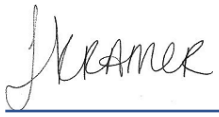
Eurofins Carlsbad

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

Client: Vertex
Project/Site: PLU 342

Laboratory Job ID: 890-6118-1
SDG: 23E 06066

Table of Contents

Definitions/Glossary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1-	Surrogate recovery exceeds control limits, low biased.
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.
¤	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: PLU 342

Job ID: 890-6118-1

Job ID: 890-6118-1 Eurofins Carlsbad

Job Narrative
890-6118-1

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 2/7/2024 8:53 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -1.2°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: BH24-04 (890-6118-1), BH24-04 (890-6118-2), BH24-05 (890-6118-3), BH24-05 (890-6118-4), BH24-06 (890-6118-5), BH24-06 (890-6118-6), BH24-07 (890-6118-7) and BH24-07 (890-6118-8).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-73190 and analytical batch 880-73398 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 continuing calibration verification (CCV) associated with batch 880-73398 recovered above the upper control limit for Benzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCV 880-73398/64).

Method 8021B: The surrogate recovery for the blank associated with preparation batch 880-73189 and 880-73192 and analytical batch 880-73320 was outside the control limits.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-73189 and analytical batch 880-73320 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.

Method 8021B: The continuing calibration verification (CCV) associated with batch 880-73320 recovered below the lower control limit for Ethylbenzene, m-Xylene & p-Xylene and o-Xylene. An acceptable CCV was ran within the 12 hour window, therefore the data has been qualified and reported. The associated sample is impacted: (CCV 880-73320/64).

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 880-72728 and analytical batch 880-73314 was outside the upper control limits.

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

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

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-04

Date Collected: 02/06/24 09:30
Date Received: 02/07/24 08:53
Sample Depth: 0

Lab Sample ID: 890-6118-1
Matrix: Solid

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		02/14/24 16:44	02/17/24 13:21	1
Toluene	<0.00202	U	0.00202		mg/Kg		02/14/24 16:44	02/17/24 13:21	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		02/14/24 16:44	02/17/24 13:21	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		02/14/24 16:44	02/17/24 13:21	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		02/14/24 16:44	02/17/24 13:21	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		02/14/24 16:44	02/17/24 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*02/14/24 16:44*	*02/17/24 13:21*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*	*02/14/24 16:44*	*02/17/24 13:21*	*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			02/17/24 13:21	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			02/16/24 10:18	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	<49.8	U	49.8		mg/Kg		02/09/24 11:16	02/16/24 10:18	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		02/09/24 11:16	02/16/24 10:18	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		02/09/24 11:16	02/16/24 10:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*118*		*70 - 130*	*02/09/24 11:16*	*02/16/24 10:18*	*1*
o-Terphenyl	*102*		*70 - 130*	*02/09/24 11:16*	*02/16/24 10:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1250**		24.8		mg/Kg			02/09/24 17:43	5

Client Sample ID: BH24-04

Date Collected: 02/06/24 09:40
Date Received: 02/07/24 08:53
Sample Depth: 0.5

Lab Sample ID: 890-6118-2
Matrix: Solid

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		02/14/24 16:44	02/17/24 13:41	1
Toluene	<0.00201	U	0.00201		mg/Kg		02/14/24 16:44	02/17/24 13:41	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		02/14/24 16:44	02/17/24 13:41	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		02/14/24 16:44	02/17/24 13:41	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		02/14/24 16:44	02/17/24 13:41	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		02/14/24 16:44	02/17/24 13:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*02/14/24 16:44*	*02/17/24 13:41*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-04

Date Collected: 02/06/24 09:40
Date Received: 02/07/24 08:53
Sample Depth: 0.5

Lab Sample ID: 890-6118-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*02/14/24 16:44*	*02/17/24 13:41*	*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			02/17/24 13:41	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			02/16/24 11:25	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	50.3	mg/Kg		02/09/24 11:16	02/16/24 11:25	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		02/09/24 11:16	02/16/24 11:25	1
OII Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		02/09/24 11:16	02/16/24 11:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*02/09/24 11:16*	*02/16/24 11:25*	*1*
o-Terphenyl	*90*		*70 - 130*	*02/09/24 11:16*	*02/16/24 11:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**161**		4.99	mg/Kg			02/09/24 17:50	1

Client Sample ID: BH24-05

Date Collected: 02/06/24 09:50
Date Received: 02/07/24 08:53
Sample Depth: 0

Lab Sample ID: 890-6118-3

Matrix: Solid

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		02/14/24 16:44	02/17/24 14:02	1
Toluene	<0.00202	U	0.00202	mg/Kg		02/14/24 16:44	02/17/24 14:02	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		02/14/24 16:44	02/17/24 14:02	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		02/14/24 16:44	02/17/24 14:02	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		02/14/24 16:44	02/17/24 14:02	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		02/14/24 16:44	02/17/24 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*02/14/24 16:44*	*02/17/24 14:02*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*02/14/24 16:44*	*02/17/24 14:02*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			02/17/24 14:02	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.2	U	50.2	mg/Kg			02/16/24 11:47	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-05
Date Collected: 02/06/24 09:50
Date Received: 02/07/24 08:53
Sample Depth: 0

Lab Sample ID: 890-6118-3
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	<50.2	U	50.2		mg/Kg		02/09/24 11:16	02/16/24 11:47	1
Diesel Range Organics (Over C10-C28)	<50.2	U	50.2		mg/Kg		02/09/24 11:16	02/16/24 11:47	1
OII Range Organics (Over C28-C36)	<50.2	U	50.2		mg/Kg		02/09/24 11:16	02/16/24 11:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*109*		*70 - 130*	*02/09/24 11:16*	*02/16/24 11:47*	*1*
o-Terphenyl	*90*		*70 - 130*	*02/09/24 11:16*	*02/16/24 11:47*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**71.7**		4.98		mg/Kg			02/09/24 17:56	1

Client Sample ID: BH24-05
Date Collected: 02/06/24 10:00
Date Received: 02/07/24 08:53
Sample Depth: 0.5

Lab Sample ID: 890-6118-4
Matrix: Solid

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		02/14/24 16:44	02/17/24 14:23	1
Toluene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:44	02/17/24 14:23	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:44	02/17/24 14:23	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		02/14/24 16:44	02/17/24 14:23	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:44	02/17/24 14:23	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		02/14/24 16:44	02/17/24 14:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*	*02/14/24 16:44*	*02/17/24 14:23*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*02/14/24 16:44*	*02/17/24 14:23*	*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			02/17/24 14:23	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			02/16/24 12:09	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		02/09/24 11:16	02/16/24 12:09	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4		mg/Kg		02/09/24 11:16	02/16/24 12:09	1
OII Range Organics (Over C28-C36)	<50.4	U	50.4		mg/Kg		02/09/24 11:16	02/16/24 12:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*112*		*70 - 130*	*02/09/24 11:16*	*02/16/24 12:09*	*1*
o-Terphenyl	*96*		*70 - 130*	*02/09/24 11:16*	*02/16/24 12:09*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-05

Date Collected: 02/06/24 10:00
Date Received: 02/07/24 08:53
Sample Depth: 0.5

Lab Sample ID: 890-6118-4

Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.3		5.03		mg/Kg			02/09/24 18:02	1

Client Sample ID: BH24-06

Date Collected: 02/06/24 10:10
Date Received: 02/07/24 08:53
Sample Depth: 0

Lab Sample ID: 890-6118-5

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		02/14/24 16:44	02/17/24 14:43	1
Toluene	<0.00198	U	0.00198		mg/Kg		02/14/24 16:44	02/17/24 14:43	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		02/14/24 16:44	02/17/24 14:43	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		02/14/24 16:44	02/17/24 14:43	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		02/14/24 16:44	02/17/24 14:43	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		02/14/24 16:44	02/17/24 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*02/14/24 16:44*	*02/17/24 14:43*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*02/14/24 16:44*	*02/17/24 14:43*	*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			02/17/24 14:43	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			02/16/24 12:31	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		02/09/24 11:16	02/16/24 12:31	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5		mg/Kg		02/09/24 11:16	02/16/24 12:31	1
OII Range Organics (Over C28-C36)	<50.5	U	50.5		mg/Kg		02/09/24 11:16	02/16/24 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*122*		*70 - 130*	*02/09/24 11:16*	*02/16/24 12:31*	*1*
o-Terphenyl	*101*		*70 - 130*	*02/09/24 11:16*	*02/16/24 12:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	190		4.98		mg/Kg			02/09/24 18:09	1

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-06

Lab Sample ID: 890-6118-6
Matrix: Solid
Date Collected: 02/06/24 10:20
Date Received: 02/07/24 08:53
Sample Depth: 0.5

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		02/14/24 16:41	02/17/24 03:57	1
Toluene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:41	02/17/24 03:57	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:41	02/17/24 03:57	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		02/14/24 16:41	02/17/24 03:57	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		02/14/24 16:41	02/17/24 03:57	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		02/14/24 16:41	02/17/24 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*70 - 130*	*02/14/24 16:41*	*02/17/24 03:57*	*1*
1,4-Difluorobenzene (Surr)	*85*		*70 - 130*	*02/14/24 16:41*	*02/17/24 03:57*	*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			02/17/24 03:57	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			02/16/24 12:53	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		02/09/24 11:16	02/16/24 12:53	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		02/09/24 11:16	02/16/24 12:53	1
OII Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		02/09/24 11:16	02/16/24 12:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*02/09/24 11:16*	*02/16/24 12:53*	*1*
o-Terphenyl	*97*		*70 - 130*	*02/09/24 11:16*	*02/16/24 12:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**152**		5.03		mg/Kg			02/09/24 18:15	1

Client Sample ID: BH24-07

Lab Sample ID: 890-6118-7
Matrix: Solid
Date Collected: 02/06/24 10:30
Date Received: 02/07/24 08:53
Sample Depth: 0

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		02/14/24 16:41	02/17/24 04:18	1
Toluene	<0.00198	U	0.00198		mg/Kg		02/14/24 16:41	02/17/24 04:18	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		02/14/24 16:41	02/17/24 04:18	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		02/14/24 16:41	02/17/24 04:18	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		02/14/24 16:41	02/17/24 04:18	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		02/14/24 16:41	02/17/24 04:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*	*02/14/24 16:41*	*02/17/24 04:18*	*1*

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Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-07

Date Collected: 02/06/24 10:30
Date Received: 02/07/24 08:53
Sample Depth: 0

Lab Sample ID: 890-6118-7

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*79*		*70 - 130*	*02/14/24 16:41*	*02/17/24 04:18*	*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			02/17/24 04:18	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			02/16/24 13:15	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		02/09/24 11:16	02/16/24 13:15	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		02/09/24 11:16	02/16/24 13:15	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		02/09/24 11:16	02/16/24 13:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*02/09/24 11:16*	*02/16/24 13:15*	*1*
o-Terphenyl	*95*		*70 - 130*	*02/09/24 11:16*	*02/16/24 13:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**53.6**		4.97	mg/Kg			02/09/24 18:34	1

Client Sample ID: BH24-07

Date Collected: 02/06/24 10:40
Date Received: 02/07/24 08:53
Sample Depth: 0.5

Lab Sample ID: 890-6118-8

Matrix: Solid

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		02/14/24 16:48	02/16/24 14:33	1
Toluene	<0.00202	U	0.00202	mg/Kg		02/14/24 16:48	02/16/24 14:33	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		02/14/24 16:48	02/16/24 14:33	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		02/14/24 16:48	02/16/24 14:33	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		02/14/24 16:48	02/16/24 14:33	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		02/14/24 16:48	02/16/24 14:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*70 - 130*	*02/14/24 16:48*	*02/16/24 14:33*	*1*
1,4-Difluorobenzene (Surr)	*73*		*70 - 130*	*02/14/24 16:48*	*02/16/24 14:33*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			02/16/24 14:33	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			02/16/24 13:36	1

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Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-07

Date Collected: 02/06/24 10:40
Date Received: 02/07/24 08:53
Sample Depth: 0.5

Lab Sample ID: 890-6118-8

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		02/09/24 11:16	02/16/24 13:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/09/24 11:16	02/16/24 13:36	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/09/24 11:16	02/16/24 13:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*116*		*70 - 130*	*02/09/24 11:16*	*02/16/24 13:36*	*1*
o-Terphenyl	*95*		*70 - 130*	*02/09/24 11:16*	*02/16/24 13:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**37.5**		5.05		mg/Kg			02/09/24 18:40	1

Surrogate Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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)										
880-38969-A-1-B MS	Matrix Spike	106	114										
880-38969-A-1-C MSD	Matrix Spike Duplicate	101	97										
880-39033-A-2-C MS	Matrix Spike	116	122										
880-39033-A-2-D MSD	Matrix Spike Duplicate	113	121										
890-6117-A-1-E MS	Matrix Spike	100	103										
890-6117-A-1-F MSD	Matrix Spike Duplicate	101	103										
890-6118-1	BH24-04	104	107										
890-6118-2	BH24-04	102	104										
890-6118-3	BH24-05	104	105										
890-6118-4	BH24-05	106	100										
890-6118-5	BH24-06	102	102										
890-6118-6	BH24-06	81	85										
890-6118-7	BH24-07	86	79										
890-6118-8	BH24-07	83	73										
LCS 880-73189/1-A	Lab Control Sample	122	129										
LCS 880-73190/1-A	Lab Control Sample	106	101										
LCS 880-73192/1-A	Lab Control Sample	112	120										
LCSD 880-73189/2-A	Lab Control Sample Dup	117	112										
LCSD 880-73190/2-A	Lab Control Sample Dup	116	99										
LCSD 880-73192/2-A	Lab Control Sample Dup	112	120										
MB 880-73188/5-A	Method Blank	75	98										
MB 880-73189/5-A	Method Blank	69 S1-	79										
MB 880-73190/5-A	Method Blank	76	101										
MB 880-73192/5-A	Method Blank	66 S1-	98										

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)										
890-6118-1	BH24-04	118	102										
890-6118-1 MS	BH24-04	115	86										
890-6118-1 MSD	BH24-04	111	84										
890-6118-2	BH24-04	108	90										
890-6118-3	BH24-05	109	90										
890-6118-4	BH24-05	112	96										
890-6118-5	BH24-06	122	101										
890-6118-6	BH24-06	114	97										
890-6118-7	BH24-07	111	95										
890-6118-8	BH24-07	116	95										
LCS 880-72728/2-A	Lab Control Sample	112	115										
LCSD 880-72728/3-A	Lab Control Sample Dup	108	104										
MB 880-72728/1-A	Method Blank	268 S1+	234 S1+										

Surrogate Legend

1CO = 1-Chlorooctane

Surrogate Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

OTPH = o-Terphenyl

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-73188/5-A
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73188

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:39	02/16/24 20:08	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:39	02/16/24 20:08	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:39	02/16/24 20:08	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:39	02/16/24 20:08	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:39	02/16/24 20:08	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:39	02/16/24 20:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*75*		*70 - 130*	*02/14/24 16:39*	*02/16/24 20:08*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*02/14/24 16:39*	*02/16/24 20:08*	*1*

Lab Sample ID: MB 880-73189/5-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73189

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:41	02/16/24 21:44	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:41	02/16/24 21:44	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:41	02/16/24 21:44	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:41	02/16/24 21:44	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:41	02/16/24 21:44	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:41	02/16/24 21:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*69*	*S1-*	*70 - 130*	*02/14/24 16:41*	*02/16/24 21:44*	*1*
1,4-Difluorobenzene (Surr)	*79*		*70 - 130*	*02/14/24 16:41*	*02/16/24 21:44*	*1*

Lab Sample ID: LCS 880-73189/1-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73189

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09443		mg/Kg		94	70 - 130		
Toluene			0.100	0.08948		mg/Kg		89	70 - 130		
Ethylbenzene			0.100	0.1061		mg/Kg		106	70 - 130		
m-Xylene & p-Xylene			0.200	0.2152		mg/Kg		108	70 - 130		
o-Xylene			0.100	0.1049		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*
1,4-Difluorobenzene (Surr)	*129*		*70 - 130*

Lab Sample ID: LCSD 880-73189/2-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.08970		mg/Kg		90	70 - 130	5	35

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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

Lab Sample ID: LCSD 880-73189/2-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.08017		mg/Kg		80	70 - 130	11	35
Ethylbenzene			0.100	0.1014		mg/Kg		101	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.2106		mg/Kg		105	70 - 130	2	35
o-Xylene			0.100	0.1022		mg/Kg		102	70 - 130	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: 880-38969-A-1-B MS
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73189

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U F1 F2	0.100	0.06560	F1	mg/Kg		65	70 - 130		
Toluene	<0.00199	U F1	0.100	0.06254	F1	mg/Kg		62	70 - 130		
Ethylbenzene	<0.00199	U F1	0.100	0.06140	F1	mg/Kg		61	70 - 130		
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.1271	F1	mg/Kg		63	70 - 130		
o-Xylene	<0.00199	U F1	0.100	0.06503	F1	mg/Kg		65	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*

Lab Sample ID: 880-38969-A-1-C MSD
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73189

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	0.101	0.04331	F1 F2	mg/Kg		43	70 - 130	41	35
Toluene	<0.00199	U F1	0.101	0.04462	F1	mg/Kg		44	70 - 130	33	35
Ethylbenzene	<0.00199	U F1	0.101	0.04449	F1	mg/Kg		44	70 - 130	32	35
m-Xylene & p-Xylene	<0.00398	U F1	0.201	0.09033	F1	mg/Kg		45	70 - 130	34	35
o-Xylene	<0.00199	U F1	0.101	0.04935	F1	mg/Kg		49	70 - 130	27	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: MB 880-73190/5-A
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73190

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:44	02/17/24 06:47	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:44	02/17/24 06:47	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:44	02/17/24 06:47	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:44	02/17/24 06:47	1

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QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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

Lab Sample ID: MB 880-73190/5-A
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73190

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:44	02/17/24 06:47	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:44	02/17/24 06:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*76*		*70 - 130*	*02/14/24 16:44*	*02/17/24 06:47*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*02/14/24 16:44*	*02/17/24 06:47*	*1*

Lab Sample ID: LCS 880-73190/1-A
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73190

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1127		mg/Kg		113	70 - 130		
Toluene			0.100	0.09114		mg/Kg		91	70 - 130		
Ethylbenzene			0.100	0.09180		mg/Kg		92	70 - 130		
m-Xylene & p-Xylene			0.200	0.1875		mg/Kg		94	70 - 130		
o-Xylene			0.100	0.09675		mg/Kg		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-73190/2-A
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73190

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1031		mg/Kg		103	70 - 130	9	35
Toluene			0.100	0.09251		mg/Kg		93	70 - 130	1	35
Ethylbenzene			0.100	0.09963		mg/Kg		100	70 - 130	8	35
m-Xylene & p-Xylene			0.200	0.2102		mg/Kg		105	70 - 130	11	35
o-Xylene			0.100	0.1085		mg/Kg		109	70 - 130	11	35

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

Lab Sample ID: 890-6117-A-1-E MS
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73190

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.100	0.08816		mg/Kg		88	70 - 130		
Toluene	<0.00199	U F1	0.100	0.06795	F1	mg/Kg		67	70 - 130		
Ethylbenzene	<0.00199	U F1	0.100	0.06588	F1	mg/Kg		66	70 - 130		
m-Xylene & p-Xylene	<0.00398	U F1	0.200	0.1288	F1	mg/Kg		64	70 - 130		
o-Xylene	<0.00199	U F1	0.100	0.06497	F1	mg/Kg		64	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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

Lab Sample ID: 890-6117-A-1-E MS
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73190

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: 890-6117-A-1-F MSD
Matrix: Solid
Analysis Batch: 73398

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.08911		mg/Kg		89	70 - 130	1	35
Toluene	<0.00199	U F1	0.101	0.07001	F1	mg/Kg		69	70 - 130	3	35
Ethylbenzene	<0.00199	U F1	0.101	0.06779	F1	mg/Kg		67	70 - 130	3	35
m-Xylene & p-Xylene	<0.00398	U F1	0.201	0.1334	F1	mg/Kg		66	70 - 130	3	35
o-Xylene	<0.00199	U F1	0.101	0.06752	F1	mg/Kg		67	70 - 130	4	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: MB 880-73192/5-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73192

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/14/24 16:48	02/16/24 11:06	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/14/24 16:48	02/16/24 11:06	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	66	S1-	70 - 130	02/14/24 16:48	02/16/24 11:06	1
1,4-Difluorobenzene (Surr)	98		70 - 130	02/14/24 16:48	02/16/24 11:06	1

Lab Sample ID: LCS 880-73192/1-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73192

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09329		mg/Kg		93	70 - 130		
Toluene			0.100	0.08754		mg/Kg		88	70 - 130		
Ethylbenzene			0.100	0.09520		mg/Kg		95	70 - 130		
m-Xylene & p-Xylene			0.200	0.2018		mg/Kg		101	70 - 130		
o-Xylene			0.100	0.09753		mg/Kg		98	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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

Lab Sample ID: LCS 880-73192/1-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73192

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

Lab Sample ID: LCSD 880-73192/2-A
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73192

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09399		mg/Kg		94	70 - 130	1	35
Toluene			0.100	0.08640		mg/Kg		86	70 - 130	1	35
Ethylbenzene			0.100	0.09818		mg/Kg		98	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.2054		mg/Kg		103	70 - 130	2	35
o-Xylene			0.100	0.09884		mg/Kg		99	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	120		70 - 130

Lab Sample ID: 880-39033-A-2-C MS
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73192

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.100	0.09558		mg/Kg		95	70 - 130		
Toluene	<0.00199	U	0.100	0.09032		mg/Kg		90	70 - 130		
Ethylbenzene	<0.00199	U	0.100	0.1022		mg/Kg		102	70 - 130		
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2133		mg/Kg		106	70 - 130		
o-Xylene	<0.00199	U	0.100	0.1035		mg/Kg		103	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,4-Difluorobenzene (Surr)	122		70 - 130

Lab Sample ID: 880-39033-A-2-D MSD
Matrix: Solid
Analysis Batch: 73320

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73192

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1046		mg/Kg		104	70 - 130	9	35
Toluene	<0.00199	U	0.101	0.09485		mg/Kg		94	70 - 130	5	35
Ethylbenzene	<0.00199	U	0.101	0.1090		mg/Kg		108	70 - 130	6	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.2261		mg/Kg		112	70 - 130	6	35
o-Xylene	<0.00199	U	0.101	0.1101		mg/Kg		109	70 - 130	6	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	121		70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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

Lab Sample ID: MB 880-72728/1-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 72728

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		02/09/24 11:16	02/16/24 07:45	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/09/24 11:16	02/16/24 07:45	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/09/24 11:16	02/16/24 07:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*268*	*S1+*	*70 - 130*	*02/09/24 11:16*	*02/16/24 07:45*	*1*
o-Terphenyl	*234*	*S1+*	*70 - 130*	*02/09/24 11:16*	*02/16/24 07:45*	*1*

Lab Sample ID: LCS 880-72728/2-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 72728

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1071		mg/Kg		107	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	933.5		mg/Kg		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*112*		*70 - 130*
o-Terphenyl	*115*		*70 - 130*

Lab Sample ID: LCSD 880-72728/3-A
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 72728

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1086		mg/Kg		109	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	934.5		mg/Kg		93	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*108*		*70 - 130*
o-Terphenyl	*104*		*70 - 130*

Lab Sample ID: 890-6118-1 MS
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: BH24-04
Prep Type: Total/NA
Prep Batch: 72728

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	991	989.8		mg/Kg		97	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.8	U	991	1241		mg/Kg		123	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

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

Lab Sample ID: 890-6118-1 MS
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: BH24-04
Prep Type: Total/NA
Prep Batch: 72728

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	115		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 890-6118-1 MSD
Matrix: Solid
Analysis Batch: 73314

Client Sample ID: BH24-04
Prep Type: Total/NA
Prep Batch: 72728

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	<49.8	U	991	961.4		mg/Kg		94	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<49.8	U	991	1209		mg/Kg		120	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	84		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-72650/1-A
Matrix: Solid
Analysis Batch: 72725

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			02/09/24 16:28	1

Lab Sample ID: LCS 880-72650/2-A
Matrix: Solid
Analysis Batch: 72725

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	254.4		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-72650/3-A
Matrix: Solid
Analysis Batch: 72725

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	264.2		mg/Kg		106	90 - 110	4	20

Lab Sample ID: 890-6118-6 MS
Matrix: Solid
Analysis Batch: 72725

Client Sample ID: BH24-06
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	152		252	383.5		mg/Kg		92	90 - 110		

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-6118-6 MSD
Matrix: Solid
Analysis Batch: 72725

Client Sample ID: BH24-06
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	152		252	409.9		mg/Kg		103	90 - 110	7	20

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

GC VOA

Prep Batch: 73188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-73188/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 73189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-6	BH24-06	Total/NA	Solid	5035	
890-6118-7	BH24-07	Total/NA	Solid	5035	
MB 880-73189/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73189/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73189/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-38969-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-38969-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 73190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Total/NA	Solid	5035	
890-6118-2	BH24-04	Total/NA	Solid	5035	
890-6118-3	BH24-05	Total/NA	Solid	5035	
890-6118-4	BH24-05	Total/NA	Solid	5035	
890-6118-5	BH24-06	Total/NA	Solid	5035	
MB 880-73190/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73190/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73190/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-6117-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
890-6117-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 73192

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-8	BH24-07	Total/NA	Solid	5035	
MB 880-73192/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73192/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73192/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-39033-A-2-C MS	Matrix Spike	Total/NA	Solid	5035	
880-39033-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 73320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-6	BH24-06	Total/NA	Solid	8021B	73189
890-6118-7	BH24-07	Total/NA	Solid	8021B	73189
890-6118-8	BH24-07	Total/NA	Solid	8021B	73192
MB 880-73189/5-A	Method Blank	Total/NA	Solid	8021B	73189
MB 880-73192/5-A	Method Blank	Total/NA	Solid	8021B	73192
LCS 880-73189/1-A	Lab Control Sample	Total/NA	Solid	8021B	73189
LCS 880-73192/1-A	Lab Control Sample	Total/NA	Solid	8021B	73192
LCSD 880-73189/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73189
LCSD 880-73192/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73192
880-38969-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	73189
880-38969-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73189
880-39033-A-2-C MS	Matrix Spike	Total/NA	Solid	8021B	73192
880-39033-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73192

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

GC VOA

Analysis Batch: 73398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Total/NA	Solid	8021B	73190
890-6118-2	BH24-04	Total/NA	Solid	8021B	73190
890-6118-3	BH24-05	Total/NA	Solid	8021B	73190
890-6118-4	BH24-05	Total/NA	Solid	8021B	73190
890-6118-5	BH24-06	Total/NA	Solid	8021B	73190
MB 880-73188/5-A	Method Blank	Total/NA	Solid	8021B	73188
MB 880-73190/5-A	Method Blank	Total/NA	Solid	8021B	73190
LCS 880-73190/1-A	Lab Control Sample	Total/NA	Solid	8021B	73190
LCSD 880-73190/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73190
890-6117-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	73190
890-6117-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73190

Analysis Batch: 73576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Total/NA	Solid	Total BTEX	
890-6118-2	BH24-04	Total/NA	Solid	Total BTEX	
890-6118-3	BH24-05	Total/NA	Solid	Total BTEX	
890-6118-4	BH24-05	Total/NA	Solid	Total BTEX	
890-6118-5	BH24-06	Total/NA	Solid	Total BTEX	
890-6118-6	BH24-06	Total/NA	Solid	Total BTEX	
890-6118-7	BH24-07	Total/NA	Solid	Total BTEX	
890-6118-8	BH24-07	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 72728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Total/NA	Solid	8015NM Prep	
890-6118-2	BH24-04	Total/NA	Solid	8015NM Prep	
890-6118-3	BH24-05	Total/NA	Solid	8015NM Prep	
890-6118-4	BH24-05	Total/NA	Solid	8015NM Prep	
890-6118-5	BH24-06	Total/NA	Solid	8015NM Prep	
890-6118-6	BH24-06	Total/NA	Solid	8015NM Prep	
890-6118-7	BH24-07	Total/NA	Solid	8015NM Prep	
890-6118-8	BH24-07	Total/NA	Solid	8015NM Prep	
MB 880-72728/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-72728/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-72728/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6118-1 MS	BH24-04	Total/NA	Solid	8015NM Prep	
890-6118-1 MSD	BH24-04	Total/NA	Solid	8015NM Prep	

Analysis Batch: 73314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Total/NA	Solid	8015B NM	72728
890-6118-2	BH24-04	Total/NA	Solid	8015B NM	72728
890-6118-3	BH24-05	Total/NA	Solid	8015B NM	72728
890-6118-4	BH24-05	Total/NA	Solid	8015B NM	72728
890-6118-5	BH24-06	Total/NA	Solid	8015B NM	72728
890-6118-6	BH24-06	Total/NA	Solid	8015B NM	72728
890-6118-7	BH24-07	Total/NA	Solid	8015B NM	72728
890-6118-8	BH24-07	Total/NA	Solid	8015B NM	72728

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

GC Semi VOA (Continued)

Analysis Batch: 73314 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-72728/1-A	Method Blank	Total/NA	Solid	8015B NM	72728
LCS 880-72728/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	72728
LCSD 880-72728/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	72728
890-6118-1 MS	BH24-04	Total/NA	Solid	8015B NM	72728
890-6118-1 MSD	BH24-04	Total/NA	Solid	8015B NM	72728

Analysis Batch: 73527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Total/NA	Solid	8015 NM	
890-6118-2	BH24-04	Total/NA	Solid	8015 NM	
890-6118-3	BH24-05	Total/NA	Solid	8015 NM	
890-6118-4	BH24-05	Total/NA	Solid	8015 NM	
890-6118-5	BH24-06	Total/NA	Solid	8015 NM	
890-6118-6	BH24-06	Total/NA	Solid	8015 NM	
890-6118-7	BH24-07	Total/NA	Solid	8015 NM	
890-6118-8	BH24-07	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 72650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Soluble	Solid	DI Leach	
890-6118-2	BH24-04	Soluble	Solid	DI Leach	
890-6118-3	BH24-05	Soluble	Solid	DI Leach	
890-6118-4	BH24-05	Soluble	Solid	DI Leach	
890-6118-5	BH24-06	Soluble	Solid	DI Leach	
890-6118-6	BH24-06	Soluble	Solid	DI Leach	
890-6118-7	BH24-07	Soluble	Solid	DI Leach	
890-6118-8	BH24-07	Soluble	Solid	DI Leach	
MB 880-72650/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-72650/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-72650/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6118-6 MS	BH24-06	Soluble	Solid	DI Leach	
890-6118-6 MSD	BH24-06	Soluble	Solid	DI Leach	

Analysis Batch: 72725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6118-1	BH24-04	Soluble	Solid	300.0	72650
890-6118-2	BH24-04	Soluble	Solid	300.0	72650
890-6118-3	BH24-05	Soluble	Solid	300.0	72650
890-6118-4	BH24-05	Soluble	Solid	300.0	72650
890-6118-5	BH24-06	Soluble	Solid	300.0	72650
890-6118-6	BH24-06	Soluble	Solid	300.0	72650
890-6118-7	BH24-07	Soluble	Solid	300.0	72650
890-6118-8	BH24-07	Soluble	Solid	300.0	72650
MB 880-72650/1-A	Method Blank	Soluble	Solid	300.0	72650
LCS 880-72650/2-A	Lab Control Sample	Soluble	Solid	300.0	72650
LCSD 880-72650/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	72650
890-6118-6 MS	BH24-06	Soluble	Solid	300.0	72650
890-6118-6 MSD	BH24-06	Soluble	Solid	300.0	72650

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-04
Date Collected: 02/06/24 09:30
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-1
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			4.95 g	5 mL	73190	02/14/24 16:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73398	02/17/24 13:21	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 13:21	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 10:18	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 10:18	SM	EET MID
Soluble	Leach	DI Leach			5.04 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		5			72725	02/09/24 17:43	CH	EET MID

Client Sample ID: BH24-04
Date Collected: 02/06/24 09:40
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-2
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			4.98 g	5 mL	73190	02/14/24 16:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73398	02/17/24 13:41	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 13:41	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 11:25	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 11:25	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 17:50	CH	EET MID

Client Sample ID: BH24-05
Date Collected: 02/06/24 09:50
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-3
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			4.96 g	5 mL	73190	02/14/24 16:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73398	02/17/24 14:02	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 14:02	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			9.97 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 11:47	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 17:56	CH	EET MID

Client Sample ID: BH24-05
Date Collected: 02/06/24 10:00
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-4
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	73190	02/14/24 16:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73398	02/17/24 14:23	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 14:23	SM	EET MID

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-05
Date Collected: 02/06/24 10:00
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-4
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			73527	02/16/24 12:09	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 12:09	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 18:02	CH	EET MID

Client Sample ID: BH24-06
Date Collected: 02/06/24 10:10
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-5
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			5.05 g	5 mL	73190	02/14/24 16:44	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73398	02/17/24 14:43	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 14:43	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 12:31	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 12:31	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 18:09	CH	EET MID

Client Sample ID: BH24-06
Date Collected: 02/06/24 10:20
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-6
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			5.03 g	5 mL	73189	02/14/24 16:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/17/24 03:57	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 03:57	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 12:53	SM	EET MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 12:53	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 18:15	CH	EET MID

Client Sample ID: BH24-07
Date Collected: 02/06/24 10:30
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-7
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			5.05 g	5 mL	73189	02/14/24 16:41	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/17/24 04:18	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/17/24 04:18	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 13:15	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 13:15	SM	EET MID

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6118-1
SDG: 23E 06066

Client Sample ID: BH24-07

Date Collected: 02/06/24 10:30
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-7

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			5.03 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 18:34	CH	EET MID

Client Sample ID: BH24-07

Date Collected: 02/06/24 10:40
Date Received: 02/07/24 08:53

Lab Sample ID: 890-6118-8

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			4.96 g	5 mL	73192	02/14/24 16:48	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73320	02/16/24 14:33	SM	EET MID
Total/NA	Analysis	Total BTEX		1			73576	02/16/24 14:33	SM	EET MID
Total/NA	Analysis	8015 NM		1			73527	02/16/24 13:36	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	72728	02/09/24 11:16	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73314	02/16/24 13:36	SM	EET MID
Soluble	Leach	DI Leach			4.95 g	50 mL	72650	02/08/24 11:58	SA	EET MID
Soluble	Analysis	300.0		1			72725	02/09/24 18:40	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 342

Job ID: 890-6118-1
SDG: 23E 06066

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 342

Job ID: 890-6118-1
SDG: 23E 06066

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 342

Job ID: 890-6118-1
SDG: 23E 06066

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6118-1	BH24-04	Solid	02/06/24 09:30	02/07/24 08:53	0
890-6118-2	BH24-04	Solid	02/06/24 09:40	02/07/24 08:53	0.5
890-6118-3	BH24-05	Solid	02/06/24 09:50	02/07/24 08:53	0
890-6118-4	BH24-05	Solid	02/06/24 10:00	02/07/24 08:53	0.5
890-6118-5	BH24-06	Solid	02/06/24 10:10	02/07/24 08:53	0
890-6118-6	BH24-06	Solid	02/06/24 10:20	02/07/24 08:53	0.5
890-6118-7	BH24-07	Solid	02/06/24 10:30	02/07/24 08:53	0
890-6118-8	BH24-07	Solid	02/06/24 10:40	02/07/24 08:53	0.5

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-6118-1
SDG Number: 23E 06066

Login Number: 6118
List Number: 1
Creator: Lopez, Abraham

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: 890-6118-1
SDG Number: 23E 06066

Login Number: 6118
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 02/08/24 11:21 AM

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

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 2/20/2024 1:08:15 PM

JOB DESCRIPTION

PLU 342
023 - E - 06066

JOB NUMBER

890-6150-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

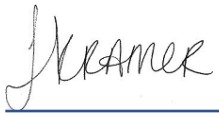
Eurofins Carlsbad

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

Client: Vertex
Project/Site: PLU 342

Laboratory Job ID: 890-6150-1
SDG: 023 - E - 06066

Table of Contents

Definitions/Glossary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Qualifiers

GC VOA

Qualifier	Qualifier Description
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.
¤	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: PLU 342

Job ID: 890-6150-1

Job ID: 890-6150-1 Eurofins Carlsbad

Job Narrative
890-6150-1

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 2/9/2024 8:54 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C.

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: BH 24 - 08 0' (890-6150-1), BH 24 - 08 0.5' (890-6150-2), BH 24 - 09 0' (890-6150-3) and BH 24 - 09 0.5' (890-6150-4).

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-72934 and analytical batch 880-73312 was outside the upper control limits.

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

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

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Client Sample ID: BH 24 - 08 0'

Lab Sample ID: 890-6150-1
Matrix: Solid
Date Collected: 02/07/24 13:10
Date Received: 02/09/24 08:54
Sample Depth: 0'

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		02/15/24 12:35	02/19/24 13:24	1
Toluene	<0.00198	U	0.00198		mg/Kg		02/15/24 12:35	02/19/24 13:24	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		02/15/24 12:35	02/19/24 13:24	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		02/15/24 12:35	02/19/24 13:24	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		02/15/24 12:35	02/19/24 13:24	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		02/15/24 12:35	02/19/24 13:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*02/15/24 12:35*	*02/19/24 13:24*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*02/15/24 12:35*	*02/19/24 13:24*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			02/19/24 13:24	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			02/16/24 13:36	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.4	U	50.4		mg/Kg		02/12/24 14:51	02/16/24 13:36	1
Diesel Range Organics (Over C10-C28)	<50.4	U	50.4		mg/Kg		02/12/24 14:51	02/16/24 13:36	1
OII Range Organics (Over C28-C36)	<50.4	U	50.4		mg/Kg		02/12/24 14:51	02/16/24 13:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*02/12/24 14:51*	*02/16/24 13:36*	*1*
o-Terphenyl	*106*		*70 - 130*	*02/12/24 14:51*	*02/16/24 13:36*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**66.0**		5.01		mg/Kg			02/12/24 19:07	1

Client Sample ID: BH 24 - 08 0.5'

Lab Sample ID: 890-6150-2
Matrix: Solid
Date Collected: 02/07/24 13:20
Date Received: 02/09/24 08:54
Sample Depth: 0.5'

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		02/15/24 12:35	02/19/24 13:45	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 13:45	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 13:45	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		02/15/24 12:35	02/19/24 13:45	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 13:45	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		02/15/24 12:35	02/19/24 13:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*02/15/24 12:35*	*02/19/24 13:45*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Client Sample ID: BH 24 - 08 0.5'

Lab Sample ID: 890-6150-2
Matrix: Solid
Date Collected: 02/07/24 13:20
Date Received: 02/09/24 08:54
Sample Depth: 0.5'

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*02/15/24 12:35*	*02/19/24 13:45*	*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			02/19/24 13:45	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			02/16/24 13:58	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	<50.5	U	50.5	mg/Kg		02/12/24 14:51	02/16/24 13:58	1
Diesel Range Organics (Over C10-C28)	<50.5	U	50.5	mg/Kg		02/12/24 14:51	02/16/24 13:58	1
OII Range Organics (Over C28-C36)	<50.5	U	50.5	mg/Kg		02/12/24 14:51	02/16/24 13:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*94*		*70 - 130*	*02/12/24 14:51*	*02/16/24 13:58*	*1*
o-Terphenyl	*100*		*70 - 130*	*02/12/24 14:51*	*02/16/24 13:58*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**70.7**		5.03	mg/Kg			02/12/24 19:21	1

Client Sample ID: BH 24 - 09 0'

Lab Sample ID: 890-6150-3
Matrix: Solid
Date Collected: 02/07/24 13:30
Date Received: 02/09/24 08:54
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		02/15/24 12:35	02/19/24 14:05	1
Toluene	<0.00199	U	0.00199	mg/Kg		02/15/24 12:35	02/19/24 14:05	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		02/15/24 12:35	02/19/24 14:05	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		02/15/24 12:35	02/19/24 14:05	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		02/15/24 12:35	02/19/24 14:05	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		02/15/24 12:35	02/19/24 14:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*	*02/15/24 12:35*	*02/19/24 14:05*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*02/15/24 12:35*	*02/19/24 14:05*	*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			02/19/24 14:05	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			02/16/24 14:21	1

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Client Sample ID: BH 24 - 09 0'

Lab Sample ID: 890-6150-3
Matrix: Solid
Date Collected: 02/07/24 13:30
Date Received: 02/09/24 08:54
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	<49.8	U	49.8		mg/Kg		02/12/24 14:51	02/16/24 14:21	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		02/12/24 14:51	02/16/24 14:21	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		02/12/24 14:51	02/16/24 14:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*02/12/24 14:51*	*02/16/24 14:21*	*1*
o-Terphenyl	*107*		*70 - 130*	*02/12/24 14:51*	*02/16/24 14:21*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		4.99		mg/Kg			02/12/24 19:25	1

Client Sample ID: BH 24 - 09 0.5'

Lab Sample ID: 890-6150-4
Matrix: Solid
Date Collected: 02/07/24 13:40
Date Received: 02/09/24 08:54
Sample Depth: 0.5'

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		02/15/24 12:35	02/19/24 14:26	1
Toluene	<0.00198	U	0.00198		mg/Kg		02/15/24 12:35	02/19/24 14:26	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		02/15/24 12:35	02/19/24 14:26	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		02/15/24 12:35	02/19/24 14:26	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		02/15/24 12:35	02/19/24 14:26	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		02/15/24 12:35	02/19/24 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*	*02/15/24 12:35*	*02/19/24 14:26*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*02/15/24 12:35*	*02/19/24 14:26*	*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			02/19/24 14:26	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			02/16/24 15:05	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		02/12/24 14:51	02/16/24 15:05	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/12/24 14:51	02/16/24 15:05	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/12/24 14:51	02/16/24 15:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*02/12/24 14:51*	*02/16/24 15:05*	*1*
o-Terphenyl	*114*		*70 - 130*	*02/12/24 14:51*	*02/16/24 15:05*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Client Sample ID: BH 24 - 09 0.5'
Date Collected: 02/07/24 13:40
Date Received: 02/09/24 08:54
Sample Depth: 0.5'

Lab Sample ID: 890-6150-4
Matrix: Solid

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	92.5		4.99		mg/Kg			02/12/24 19:30	1

Surrogate Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-39150-A-1-C MS	Matrix Spike	107	104
880-39150-A-1-D MSD	Matrix Spike Duplicate	109	100
890-6150-1	BH 24 - 08 0'	102	104
890-6150-2	BH 24 - 08 0.5'	96	101
890-6150-3	BH 24 - 09 0'	100	105
890-6150-4	BH 24 - 09 0.5'	95	103
LCS 880-73256/1-A	Lab Control Sample	102	96
LCSD 880-73256/2-A	Lab Control Sample Dup	102	101
MB 880-73256/5-A	Method Blank	76	100

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)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-6149-A-1-C MS	Matrix Spike	80	79
890-6149-A-1-D MSD	Matrix Spike Duplicate	79	77
890-6150-1	BH 24 - 08 0'	99	106
890-6150-2	BH 24 - 08 0.5'	94	100
890-6150-3	BH 24 - 09 0'	105	107
890-6150-4	BH 24 - 09 0.5'	108	114
LCS 880-72934/2-A	Lab Control Sample	94	99
LCSD 880-72934/3-A	Lab Control Sample Dup	94	99
MB 880-72934/1-A	Method Blank	235 S1+	266 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-73256/5-A
Matrix: Solid
Analysis Batch: 73431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73256

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 11:18	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 11:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 11:18	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/15/24 12:35	02/19/24 11:18	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:35	02/19/24 11:18	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/15/24 12:35	02/19/24 11:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*76*		*70 - 130*	*02/15/24 12:35*	*02/19/24 11:18*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*02/15/24 12:35*	*02/19/24 11:18*	*1*

Lab Sample ID: LCS 880-73256/1-A
Matrix: Solid
Analysis Batch: 73431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73256

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1088		mg/Kg		109	70 - 130		
Toluene			0.100	0.08862		mg/Kg		89	70 - 130		
Ethylbenzene			0.100	0.09229		mg/Kg		92	70 - 130		
m-Xylene & p-Xylene			0.200	0.1871		mg/Kg		94	70 - 130		
o-Xylene			0.100	0.09409		mg/Kg		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: LCSD 880-73256/2-A
Matrix: Solid
Analysis Batch: 73431

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73256

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1244		mg/Kg		124	70 - 130	13	35
Toluene			0.100	0.09492		mg/Kg		95	70 - 130	7	35
Ethylbenzene			0.100	0.09559		mg/Kg		96	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.1906		mg/Kg		95	70 - 130	2	35
o-Xylene			0.100	0.09616		mg/Kg		96	70 - 130	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: 880-39150-A-1-C MS
Matrix: Solid
Analysis Batch: 73431

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73256

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.100	0.09297		mg/Kg		93	70 - 130		
Toluene	<0.00199	U	0.100	0.07823		mg/Kg		78	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

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

Lab Sample ID: 880-39150-A-1-C MS
Matrix: Solid
Analysis Batch: 73431

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73256

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.100	0.07720		mg/Kg		77	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1558		mg/Kg		78	70 - 130
o-Xylene	<0.00199	U	0.100	0.07821		mg/Kg		78	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 880-39150-A-1-D MSD
Matrix: Solid
Analysis Batch: 73431

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73256

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1063		mg/Kg		106	70 - 130	13	35
Toluene	<0.00199	U	0.101	0.08653		mg/Kg		86	70 - 130	10	35
Ethylbenzene	<0.00199	U	0.101	0.08534		mg/Kg		85	70 - 130	10	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.1708		mg/Kg		85	70 - 130	9	35
o-Xylene	<0.00199	U	0.101	0.08596		mg/Kg		85	70 - 130	9	35

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

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

Lab Sample ID: MB 880-72934/1-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 72934

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		02/12/24 14:51	02/16/24 07:45	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/12/24 14:51	02/16/24 07:45	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/12/24 14:51	02/16/24 07:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*235*	*S1+*	*70 - 130*	*02/12/24 14:51*	*02/16/24 07:45*	*1*
o-Terphenyl	*266*	*S1+*	*70 - 130*	*02/12/24 14:51*	*02/16/24 07:45*	*1*

Lab Sample ID: LCS 880-72934/2-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 72934

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	977.0		mg/Kg		98	70 - 130
Diesel Range Organics (Over C10-C28)			1000	883.1		mg/Kg		88	70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

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

Lab Sample ID: LCS 880-72934/2-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 72934

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	94		70 - 130
o-Terphenyl	99		70 - 130

Lab Sample ID: LCSD 880-72934/3-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 72934

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	996.1		mg/Kg		100	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	866.9		mg/Kg		87	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	94		70 - 130
o-Terphenyl	99		70 - 130

Lab Sample ID: 890-6149-A-1-C MS
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 72934

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	1010	1148		mg/Kg		109	70 - 130		
Diesel Range Organics (Over C10-C28)	52.9		1010	768.5		mg/Kg		71	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	80		70 - 130
o-Terphenyl	79		70 - 130

Lab Sample ID: 890-6149-A-1-D MSD
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 72934

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	<49.6	U	1010	1248		mg/Kg		119	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	52.9		1010	769.2		mg/Kg		71	70 - 130	0	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	79		70 - 130
o-Terphenyl	77		70 - 130

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-72897/1-A
Matrix: Solid
Analysis Batch: 72942

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			02/12/24 18:53	1

Lab Sample ID: LCS 880-72897/2-A
Matrix: Solid
Analysis Batch: 72942

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	234.4		mg/Kg		94	90 - 110		

Lab Sample ID: LCSD 880-72897/3-A
Matrix: Solid
Analysis Batch: 72942

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	236.1		mg/Kg		94	90 - 110	1	20

Lab Sample ID: 890-6150-1 MS
Matrix: Solid
Analysis Batch: 72942

Client Sample ID: BH 24 - 08 0'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	66.0		251	319.3		mg/Kg		101	90 - 110		

Lab Sample ID: 890-6150-1 MSD
Matrix: Solid
Analysis Batch: 72942

Client Sample ID: BH 24 - 08 0'
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	66.0		251	320.1		mg/Kg		101	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

GC VOA

Prep Batch: 73256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Total/NA	Solid	5035	
890-6150-2	BH 24 - 08 0.5'	Total/NA	Solid	5035	
890-6150-3	BH 24 - 09 0'	Total/NA	Solid	5035	
890-6150-4	BH 24 - 09 0.5'	Total/NA	Solid	5035	
MB 880-73256/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73256/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73256/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-39150-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
880-39150-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 73431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Total/NA	Solid	8021B	73256
890-6150-2	BH 24 - 08 0.5'	Total/NA	Solid	8021B	73256
890-6150-3	BH 24 - 09 0'	Total/NA	Solid	8021B	73256
890-6150-4	BH 24 - 09 0.5'	Total/NA	Solid	8021B	73256
MB 880-73256/5-A	Method Blank	Total/NA	Solid	8021B	73256
LCS 880-73256/1-A	Lab Control Sample	Total/NA	Solid	8021B	73256
LCSD 880-73256/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73256
880-39150-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	73256
880-39150-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73256

Analysis Batch: 73615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Total/NA	Solid	Total BTEX	
890-6150-2	BH 24 - 08 0.5'	Total/NA	Solid	Total BTEX	
890-6150-3	BH 24 - 09 0'	Total/NA	Solid	Total BTEX	
890-6150-4	BH 24 - 09 0.5'	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 72934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Total/NA	Solid	8015NM Prep	
890-6150-2	BH 24 - 08 0.5'	Total/NA	Solid	8015NM Prep	
890-6150-3	BH 24 - 09 0'	Total/NA	Solid	8015NM Prep	
890-6150-4	BH 24 - 09 0.5'	Total/NA	Solid	8015NM Prep	
MB 880-72934/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-72934/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-72934/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6149-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-6149-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 73312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Total/NA	Solid	8015B NM	72934
890-6150-2	BH 24 - 08 0.5'	Total/NA	Solid	8015B NM	72934
890-6150-3	BH 24 - 09 0'	Total/NA	Solid	8015B NM	72934
890-6150-4	BH 24 - 09 0.5'	Total/NA	Solid	8015B NM	72934
MB 880-72934/1-A	Method Blank	Total/NA	Solid	8015B NM	72934
LCS 880-72934/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	72934

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

GC Semi VOA (Continued)

Analysis Batch: 73312 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-72934/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	72934
890-6149-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	72934
890-6149-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	72934

Analysis Batch: 73554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Total/NA	Solid	8015 NM	
890-6150-2	BH 24 - 08 0.5'	Total/NA	Solid	8015 NM	
890-6150-3	BH 24 - 09 0'	Total/NA	Solid	8015 NM	
890-6150-4	BH 24 - 09 0.5'	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 72897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Soluble	Solid	DI Leach	
890-6150-2	BH 24 - 08 0.5'	Soluble	Solid	DI Leach	
890-6150-3	BH 24 - 09 0'	Soluble	Solid	DI Leach	
890-6150-4	BH 24 - 09 0.5'	Soluble	Solid	DI Leach	
MB 880-72897/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-72897/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-72897/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6150-1 MS	BH 24 - 08 0'	Soluble	Solid	DI Leach	
890-6150-1 MSD	BH 24 - 08 0'	Soluble	Solid	DI Leach	

Analysis Batch: 72942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6150-1	BH 24 - 08 0'	Soluble	Solid	300.0	72897
890-6150-2	BH 24 - 08 0.5'	Soluble	Solid	300.0	72897
890-6150-3	BH 24 - 09 0'	Soluble	Solid	300.0	72897
890-6150-4	BH 24 - 09 0.5'	Soluble	Solid	300.0	72897
MB 880-72897/1-A	Method Blank	Soluble	Solid	300.0	72897
LCS 880-72897/2-A	Lab Control Sample	Soluble	Solid	300.0	72897
LCSD 880-72897/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	72897
890-6150-1 MS	BH 24 - 08 0'	Soluble	Solid	300.0	72897
890-6150-1 MSD	BH 24 - 08 0'	Soluble	Solid	300.0	72897

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Client Sample ID: BH 24 - 08 0'

Lab Sample ID: 890-6150-1
Matrix: Solid
Date Collected: 02/07/24 13:10
Date Received: 02/09/24 08:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	73256	02/15/24 12:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73431	02/19/24 13:24	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73615	02/19/24 13:24	MNR	EET MID
Total/NA	Analysis	8015 NM		1			73554	02/16/24 13:36	SM	EET MID
Total/NA	Prep	8015NM Prep			9.92 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 13:36	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	72897	02/12/24 12:49	SA	EET MID
Soluble	Analysis	300.0		1			72942	02/12/24 19:07	CH	EET MID

Client Sample ID: BH 24 - 08 0.5'

Lab Sample ID: 890-6150-2
Matrix: Solid
Date Collected: 02/07/24 13:20
Date Received: 02/09/24 08:54

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	73256	02/15/24 12:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73431	02/19/24 13:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73615	02/19/24 13:45	MNR	EET MID
Total/NA	Analysis	8015 NM		1			73554	02/16/24 13:58	SM	EET MID
Total/NA	Prep	8015NM Prep			9.90 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 13:58	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	72897	02/12/24 12:49	SA	EET MID
Soluble	Analysis	300.0		1			72942	02/12/24 19:21	CH	EET MID

Client Sample ID: BH 24 - 09 0'

Lab Sample ID: 890-6150-3
Matrix: Solid
Date Collected: 02/07/24 13:30
Date Received: 02/09/24 08:54

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	73256	02/15/24 12:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73431	02/19/24 14:05	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73615	02/19/24 14:05	MNR	EET MID
Total/NA	Analysis	8015 NM		1			73554	02/16/24 14:21	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 14:21	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	72897	02/12/24 12:49	SA	EET MID
Soluble	Analysis	300.0		1			72942	02/12/24 19:25	CH	EET MID

Client Sample ID: BH 24 - 09 0.5'

Lab Sample ID: 890-6150-4
Matrix: Solid
Date Collected: 02/07/24 13:40
Date Received: 02/09/24 08:54

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	73256	02/15/24 12:35	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73431	02/19/24 14:26	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73615	02/19/24 14:26	MNR	EET MID

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Client Sample ID: BH 24 - 09 0.5'
Date Collected: 02/07/24 13:40
Date Received: 02/09/24 08:54

Lab Sample ID: 890-6150-4
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			73554	02/16/24 15:05	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 15:05	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	72897	02/12/24 12:49	SA	EET MID
Soluble	Analysis	300.0		1			72942	02/12/24 19:30	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 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

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 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

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 342

Job ID: 890-6150-1
SDG: 023 - E - 06066

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6150-1	BH 24 - 08 0'	Solid	02/07/24 13:10	02/09/24 08:54	0'
890-6150-2	BH 24 - 08 0.5'	Solid	02/07/24 13:20	02/09/24 08:54	0.5'
890-6150-3	BH 24 - 09 0'	Solid	02/07/24 13:30	02/09/24 08:54	0'
890-6150-4	BH 24 - 09 0.5'	Solid	02/07/24 13:40	02/09/24 08:54	0.5'

Napp 2334849922

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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) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: 108159 1004

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Project Manager:	Sally Carrthar XTO / Vertex	Bill to: (if different)	Garrett Green XTO
Company Name:		Company Name:	
Address:	Scarrthar@vertex.ca	Address:	on file
City, State ZIP:		City, State ZIP:	
Phone:	575 361 3561	Email:	Scarrthar@vertex.ca

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	PLV 342	Turn Around	
Project Number:	023E-06066	☒ Routine ☐ Rush	
Project Location:	PLV 342	Due Date:	
Sampler's Name:	Alexavan Costa	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TW roe 7
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2
Total Containers:	6	Corrected Temperature:	3.0

ANALYSIS REQUEST

890-6150 Chain of Custody

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2SO_4: H_2 | NaOH: Na
H_3PO_4: HP
NaHSO 4: NABIS
$Na_2S_2O_3$: NaSO 3
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: BTEX (8021)	TPH (8015D)		Sample Comments
BH24-08 0'	Soil	02-7-23	13:10	0						
BH24-08 0.5'			13:20	0.5						
BH24-09 0'			13:30	0						
BH24-09 0.5			13:40	0.5		4				

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 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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		8:54 2/9	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-6150-1
SDG Number: 023 - E - 06066

Login Number: 6150
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	
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: 890-6150-1
SDG Number: 023 - E - 06066

Login Number: 6150
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 02/12/24 08:17 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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ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

PLU 342
23 - 06066

JOB NUMBER

890-6149-1

Eurofins Carlsbad
1089 N Canal St.
Carlsbad NM 88220

See page two for job notes and contact information.

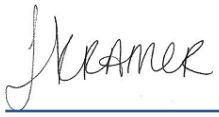
Eurofins Carlsbad

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

Client: Vertex
Project/Site: PLU 342

Laboratory Job ID: 890-6149-1
SDG: 23 - 06066

Table of Contents

Definitions/Glossary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Qualifiers

GC VOA

Qualifier	Qualifier Description
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
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.
¤	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: PLU 342

Job ID: 890-6149-1

Job ID: 890-6149-1 Eurofins Carlsbad

Job Narrative
890-6149-1

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 2/9/2024 8:54 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C.

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: BH 24 - 10 0' (890-6149-1), BH 24 - 10 1' (890-6149-2), BH 24 - 12 0' (890-6149-3), BH 24 - 12 0.5' (890-6149-4), BH 24 - 13 0' (890-6149-5) and BH 24 - 13 0.5' (890-6149-6).

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

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-72934 and analytical batch 880-73312 was outside the upper control limits.

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

HPLC/IC
Method 300_ORGFM_28D - Soluble: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-72850 and analytical batch 880-72906 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.

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 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 10 0'

Lab Sample ID: 890-6149-1
Matrix: Solid
Date Collected: 02/08/24 10:00
Date Received: 02/09/24 08:54
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		02/15/24 15:04	02/20/24 02:06	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/20/24 02:06	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/20/24 02:06	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		02/15/24 15:04	02/20/24 02:06	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/20/24 02:06	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		02/15/24 15:04	02/20/24 02:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*127*		*70 - 130*	*02/15/24 15:04*	*02/20/24 02:06*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*02/15/24 15:04*	*02/20/24 02:06*	*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			02/20/24 02:06	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	**52.9**		49.6		mg/Kg			02/16/24 10:18	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		02/12/24 14:51	02/16/24 10:18	1
Diesel Range Organics (Over C10-C28)	**52.9**		49.6		mg/Kg		02/12/24 14:51	02/16/24 10:18	1
OII Range Organics (Over C28-C36)	<49.6	U	49.6		mg/Kg		02/12/24 14:51	02/16/24 10:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*97*		*70 - 130*	*02/12/24 14:51*	*02/16/24 10:18*	*1*
o-Terphenyl	*107*		*70 - 130*	*02/12/24 14:51*	*02/16/24 10:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4680**		49.8		mg/Kg			02/12/24 15:33	10

Client Sample ID: BH 24 - 10 1'

Lab Sample ID: 890-6149-2
Matrix: Solid
Date Collected: 02/08/24 10:10
Date Received: 02/09/24 08:54
Sample Depth: 1

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		02/15/24 15:04	02/20/24 02:27	1
Toluene	<0.00199	U	0.00199		mg/Kg		02/15/24 15:04	02/20/24 02:27	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		02/15/24 15:04	02/20/24 02:27	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		02/15/24 15:04	02/20/24 02:27	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		02/15/24 15:04	02/20/24 02:27	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		02/15/24 15:04	02/20/24 02:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*126*		*70 - 130*	*02/15/24 15:04*	*02/20/24 02:27*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 10 1'

Lab Sample ID: 890-6149-2

Date Collected: 02/08/24 10:10
Matrix: Solid
Date Received: 02/09/24 08:54
Sample Depth: 1

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*	*02/15/24 15:04*	*02/20/24 02:27*	*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			02/20/24 02:27	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			02/16/24 11:25	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	50.3	mg/Kg		02/12/24 14:51	02/16/24 11:25	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3	mg/Kg		02/12/24 14:51	02/16/24 11:25	1
OII Range Organics (Over C28-C36)	<50.3	U	50.3	mg/Kg		02/12/24 14:51	02/16/24 11:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*02/12/24 14:51*	*02/16/24 11:25*	*1*
o-Terphenyl	*110*		*70 - 130*	*02/12/24 14:51*	*02/16/24 11:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**643**		5.02	mg/Kg			02/12/24 15:38	1

Client Sample ID: BH 24 - 12 0'

Lab Sample ID: 890-6149-3

Date Collected: 02/08/24 10:40
Matrix: Solid
Date Received: 02/09/24 08:54
Sample Depth: 0

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		02/15/24 15:04	02/20/24 02:47	1
Toluene	<0.00198	U	0.00198	mg/Kg		02/15/24 15:04	02/20/24 02:47	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		02/15/24 15:04	02/20/24 02:47	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		02/15/24 15:04	02/20/24 02:47	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		02/15/24 15:04	02/20/24 02:47	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		02/15/24 15:04	02/20/24 02:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*	*02/15/24 15:04*	*02/20/24 02:47*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*02/15/24 15:04*	*02/20/24 02:47*	*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			02/20/24 02:47	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			02/16/24 11:47	1

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 12 0'

Lab Sample ID: 890-6149-3
Matrix: Solid
Date Collected: 02/08/24 10:40
Date Received: 02/09/24 08:54
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	<49.7	U	49.7		mg/Kg		02/12/24 14:51	02/16/24 11:47	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		02/12/24 14:51	02/16/24 11:47	1
OII Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		02/12/24 14:51	02/16/24 11:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*02/12/24 14:51*	*02/16/24 11:47*	*1*
o-Terphenyl	*120*		*70 - 130*	*02/12/24 14:51*	*02/16/24 11:47*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**63.6**		5.04		mg/Kg			02/12/24 15:43	1

Client Sample ID: BH 24 - 12 0.5'

Lab Sample ID: 890-6149-4
Matrix: Solid
Date Collected: 02/08/24 10:50
Date Received: 02/09/24 08:54
Sample Depth: 0.5

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		02/15/24 15:04	02/20/24 03:08	1
Toluene	<0.00202	U	0.00202		mg/Kg		02/15/24 15:04	02/20/24 03:08	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		02/15/24 15:04	02/20/24 03:08	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		02/15/24 15:04	02/20/24 03:08	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		02/15/24 15:04	02/20/24 03:08	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		02/15/24 15:04	02/20/24 03:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*02/15/24 15:04*	*02/20/24 03:08*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*02/15/24 15:04*	*02/20/24 03:08*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403		mg/Kg			02/20/24 03:08	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			02/16/24 12:09	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		02/12/24 14:51	02/16/24 12:09	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		02/12/24 14:51	02/16/24 12:09	1
OII Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		02/12/24 14:51	02/16/24 12:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*02/12/24 14:51*	*02/16/24 12:09*	*1*
o-Terphenyl	*107*		*70 - 130*	*02/12/24 14:51*	*02/16/24 12:09*	*1*

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 12 0.5'

Lab Sample ID: 890-6149-4
Matrix: Solid
Date Collected: 02/08/24 10:50
Date Received: 02/09/24 08:54
Sample Depth: 0.5

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	77.6		5.01		mg/Kg			02/12/24 15:47	1

Client Sample ID: BH 24 - 13 0'

Lab Sample ID: 890-6149-5
Matrix: Solid
Date Collected: 02/08/24 11:00
Date Received: 02/09/24 08:54
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		02/15/24 15:04	02/20/24 04:58	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/20/24 04:58	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/20/24 04:58	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		02/15/24 15:04	02/20/24 04:58	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/20/24 04:58	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		02/15/24 15:04	02/20/24 04:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*	*02/15/24 15:04*	*02/20/24 04:58*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*02/15/24 15:04*	*02/20/24 04:58*	*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			02/20/24 04:58	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			02/16/24 12:31	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		02/12/24 14:51	02/16/24 12:31	1
Diesel Range Organics (Over C10-C28)	<49.6	U	49.6		mg/Kg		02/12/24 14:51	02/16/24 12:31	1
OII Range Organics (Over C28-C36)	<49.6	U	49.6		mg/Kg		02/12/24 14:51	02/16/24 12:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*117*		*70 - 130*	*02/12/24 14:51*	*02/16/24 12:31*	*1*
o-Terphenyl	*125*		*70 - 130*	*02/12/24 14:51*	*02/16/24 12:31*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	66.0		5.01		mg/Kg			02/12/24 15:52	1

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 13 0.5'

Date Collected: 02/08/24 11:10
Date Received: 02/09/24 08:54
Sample Depth: 0.5

Lab Sample ID: 890-6149-6

Matrix: Solid

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		02/15/24 15:04	02/20/24 05:18	1
Toluene	<0.00199	U	0.00199		mg/Kg		02/15/24 15:04	02/20/24 05:18	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		02/15/24 15:04	02/20/24 05:18	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		02/15/24 15:04	02/20/24 05:18	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		02/15/24 15:04	02/20/24 05:18	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		02/15/24 15:04	02/20/24 05:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*	*02/15/24 15:04*	*02/20/24 05:18*	*1*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*	*02/15/24 15:04*	*02/20/24 05:18*	*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			02/20/24 05:18	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			02/16/24 12:53	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	50.3		mg/Kg		02/12/24 14:51	02/16/24 12:53	1
Diesel Range Organics (Over C10-C28)	<50.3	U	50.3		mg/Kg		02/12/24 14:51	02/16/24 12:53	1
OII Range Organics (Over C28-C36)	<50.3	U	50.3		mg/Kg		02/12/24 14:51	02/16/24 12:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*118*		*70 - 130*	*02/12/24 14:51*	*02/16/24 12:53*	*1*
o-Terphenyl	*125*		*70 - 130*	*02/12/24 14:51*	*02/16/24 12:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**73.2**		5.03		mg/Kg			02/12/24 15:56	1

Surrogate Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

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)										
890-6143-A-1-E MS	Matrix Spike	116	99										
890-6143-A-1-F MSD	Matrix Spike Duplicate	116	97										
890-6149-1	BH 24 - 10 0'	127	105										
890-6149-2	BH 24 - 10 1'	126	106										
890-6149-3	BH 24 - 12 0'	118	103										
890-6149-4	BH 24 - 12 0.5'	117	103										
890-6149-5	BH 24 - 13 0'	99	100										
890-6149-6	BH 24 - 13 0.5'	108	110										
LCS 880-73277/1-A	Lab Control Sample	105	102										
LCSD 880-73277/2-A	Lab Control Sample Dup	103	97										
MB 880-73254/5-A	Method Blank	128	119										
MB 880-73277/5-A	Method Blank	130	118										

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)										
890-6149-1	BH 24 - 10 0'	97	107										
890-6149-1 MS	BH 24 - 10 0'	80	79										
890-6149-1 MSD	BH 24 - 10 0'	79	77										
890-6149-2	BH 24 - 10 1'	105	110										
890-6149-3	BH 24 - 12 0'	114	120										
890-6149-4	BH 24 - 12 0.5'	100	107										
890-6149-5	BH 24 - 13 0'	117	125										
890-6149-6	BH 24 - 13 0.5'	118	125										
LCS 880-72934/2-A	Lab Control Sample	94	99										
LCSD 880-72934/3-A	Lab Control Sample Dup	94	99										
MB 880-72934/1-A	Method Blank	235 S1+	266 S1+										

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-73254/5-A
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73254

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:30	02/19/24 11:56	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:30	02/19/24 11:56	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:30	02/19/24 11:56	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/15/24 12:30	02/19/24 11:56	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/15/24 12:30	02/19/24 11:56	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/15/24 12:30	02/19/24 11:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*128*		*70 - 130*	*02/15/24 12:30*	*02/19/24 11:56*	*1*
1,4-Difluorobenzene (Surr)	*119*		*70 - 130*	*02/15/24 12:30*	*02/19/24 11:56*	*1*

Lab Sample ID: MB 880-73277/5-A
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 73277

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/19/24 23:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/19/24 23:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/19/24 23:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		02/15/24 15:04	02/19/24 23:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		02/15/24 15:04	02/19/24 23:35	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		02/15/24 15:04	02/19/24 23:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*130*		*70 - 130*	*02/15/24 15:04*	*02/19/24 23:35*	*1*
1,4-Difluorobenzene (Surr)	*118*		*70 - 130*	*02/15/24 15:04*	*02/19/24 23:35*	*1*

Lab Sample ID: LCS 880-73277/1-A
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 73277

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1135		mg/Kg		113	70 - 130		
Toluene			0.100	0.1013		mg/Kg		101	70 - 130		
Ethylbenzene			0.100	0.1133		mg/Kg		113	70 - 130		
m-Xylene & p-Xylene			0.200	0.2121		mg/Kg		106	70 - 130		
o-Xylene			0.100	0.1034		mg/Kg		103	70 - 130		

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

Lab Sample ID: LCSD 880-73277/2-A
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1122		mg/Kg		112	70 - 130	1	35

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

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

Lab Sample ID: LCSD 880-73277/2-A
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 73277

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.1014		mg/Kg		101	70 - 130	0	35
Ethylbenzene			0.100	0.1118		mg/Kg		112	70 - 130	1	35
m-Xylene & p-Xylene			0.200	0.2009		mg/Kg		100	70 - 130	5	35
o-Xylene			0.100	0.09643		mg/Kg		96	70 - 130	7	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: 890-6143-A-1-E MS
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 73277

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00199	U	0.100	0.1042		mg/Kg		104	70 - 130
Toluene	<0.00199	U	0.100	0.09708		mg/Kg		96	70 - 130
Ethylbenzene	<0.00199	U	0.100	0.1075		mg/Kg		107	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2091		mg/Kg		104	70 - 130
o-Xylene	<0.00199	U	0.100	0.1096		mg/Kg		109	70 - 130

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

Lab Sample ID: 890-6143-A-1-F MSD
Matrix: Solid
Analysis Batch: 73429

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 73277

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.101	0.1057		mg/Kg		105	70 - 130	1	35
Toluene	<0.00199	U	0.101	0.1028		mg/Kg		102	70 - 130	6	35
Ethylbenzene	<0.00199	U	0.101	0.1106		mg/Kg		110	70 - 130	3	35
m-Xylene & p-Xylene	<0.00398	U	0.201	0.2262		mg/Kg		112	70 - 130	8	35
o-Xylene	<0.00199	U	0.101	0.1090		mg/Kg		108	70 - 130	1	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

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

Lab Sample ID: MB 880-72934/1-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 72934

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		02/12/24 14:51	02/16/24 07:45	1

Eurofins Carlsbad

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

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

Lab Sample ID: MB 880-72934/1-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 72934

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		02/12/24 14:51	02/16/24 07:45	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		02/12/24 14:51	02/16/24 07:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*235*	*S1+*	*70 - 130*	*02/12/24 14:51*	*02/16/24 07:45*	*1*
o-Terphenyl	*266*	*S1+*	*70 - 130*	*02/12/24 14:51*	*02/16/24 07:45*	*1*

Lab Sample ID: LCS 880-72934/2-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 72934

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	977.0		mg/Kg		98	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	883.1		mg/Kg		88	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*94*		*70 - 130*
o-Terphenyl	*99*		*70 - 130*

Lab Sample ID: LCSD 880-72934/3-A
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 72934

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	996.1		mg/Kg		100	70 - 130	2	20
Diesel Range Organics (Over C10-C28)			1000	866.9		mg/Kg		87	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*94*		*70 - 130*
o-Terphenyl	*99*		*70 - 130*

Lab Sample ID: 890-6149-1 MS
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: BH 24 - 10 0'
Prep Type: Total/NA
Prep Batch: 72934

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.6	U	1010	1148		mg/Kg		109	70 - 130		
Diesel Range Organics (Over C10-C28)	52.9		1010	768.5		mg/Kg		71	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*80*		*70 - 130*
o-Terphenyl	*79*		*70 - 130*

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

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

Lab Sample ID: 890-6149-1 MSD
Matrix: Solid
Analysis Batch: 73312

Client Sample ID: BH 24 - 10 0'
Prep Type: Total/NA
Prep Batch: 72934

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	<49.6	U	1010	1248		mg/Kg		119	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	52.9		1010	769.2		mg/Kg		71	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*79*		*70 - 130*
o-Terphenyl	*77*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-72850/1-A
Matrix: Solid
Analysis Batch: 72906

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			02/12/24 13:37	1

Lab Sample ID: LCS 880-72850/2-A
Matrix: Solid
Analysis Batch: 72906

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	235.0		mg/Kg		94	90 - 110		

Lab Sample ID: LCSD 880-72850/3-A
Matrix: Solid
Analysis Batch: 72906

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	234.9		mg/Kg		94	90 - 110	0	20

Lab Sample ID: 890-6143-A-1-B MS
Matrix: Solid
Analysis Batch: 72906

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	86.6		251	335.6		mg/Kg		99	90 - 110		

Lab Sample ID: 890-6143-A-1-C MSD
Matrix: Solid
Analysis Batch: 72906

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	86.6		251	337.8		mg/Kg		100	90 - 110	1	20

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-6145-A-5-B MS
Matrix: Solid
Analysis Batch: 72906

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	674	F1	2520	2869	F1	mg/Kg		87	90 - 110

Lab Sample ID: 890-6145-A-5-C MSD
Matrix: Solid
Analysis Batch: 72906

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	674	F1	2520	2875	F1	mg/Kg		88	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

GC VOA

Prep Batch: 73254

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-73254/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 73277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Total/NA	Solid	5035	
890-6149-2	BH 24 - 10 1'	Total/NA	Solid	5035	
890-6149-3	BH 24 - 12 0'	Total/NA	Solid	5035	
890-6149-4	BH 24 - 12 0.5'	Total/NA	Solid	5035	
890-6149-5	BH 24 - 13 0'	Total/NA	Solid	5035	
890-6149-6	BH 24 - 13 0.5'	Total/NA	Solid	5035	
MB 880-73277/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-73277/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-73277/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-6143-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
890-6143-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 73429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Total/NA	Solid	8021B	73277
890-6149-2	BH 24 - 10 1'	Total/NA	Solid	8021B	73277
890-6149-3	BH 24 - 12 0'	Total/NA	Solid	8021B	73277
890-6149-4	BH 24 - 12 0.5'	Total/NA	Solid	8021B	73277
890-6149-5	BH 24 - 13 0'	Total/NA	Solid	8021B	73277
890-6149-6	BH 24 - 13 0.5'	Total/NA	Solid	8021B	73277
MB 880-73254/5-A	Method Blank	Total/NA	Solid	8021B	73254
MB 880-73277/5-A	Method Blank	Total/NA	Solid	8021B	73277
LCS 880-73277/1-A	Lab Control Sample	Total/NA	Solid	8021B	73277
LCSD 880-73277/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	73277
890-6143-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	73277
890-6143-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	73277

Analysis Batch: 73678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Total/NA	Solid	Total BTEX	
890-6149-2	BH 24 - 10 1'	Total/NA	Solid	Total BTEX	
890-6149-3	BH 24 - 12 0'	Total/NA	Solid	Total BTEX	
890-6149-4	BH 24 - 12 0.5'	Total/NA	Solid	Total BTEX	
890-6149-5	BH 24 - 13 0'	Total/NA	Solid	Total BTEX	
890-6149-6	BH 24 - 13 0.5'	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 72934

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Total/NA	Solid	8015NM Prep	
890-6149-2	BH 24 - 10 1'	Total/NA	Solid	8015NM Prep	
890-6149-3	BH 24 - 12 0'	Total/NA	Solid	8015NM Prep	
890-6149-4	BH 24 - 12 0.5'	Total/NA	Solid	8015NM Prep	
890-6149-5	BH 24 - 13 0'	Total/NA	Solid	8015NM Prep	
890-6149-6	BH 24 - 13 0.5'	Total/NA	Solid	8015NM Prep	
MB 880-72934/1-A	Method Blank	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

GC Semi VOA (Continued)

Prep Batch: 72934 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-72934/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-72934/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-6149-1 MS	BH 24 - 10 0'	Total/NA	Solid	8015NM Prep	
890-6149-1 MSD	BH 24 - 10 0'	Total/NA	Solid	8015NM Prep	

Analysis Batch: 73312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Total/NA	Solid	8015B NM	72934
890-6149-2	BH 24 - 10 1'	Total/NA	Solid	8015B NM	72934
890-6149-3	BH 24 - 12 0'	Total/NA	Solid	8015B NM	72934
890-6149-4	BH 24 - 12 0.5'	Total/NA	Solid	8015B NM	72934
890-6149-5	BH 24 - 13 0'	Total/NA	Solid	8015B NM	72934
890-6149-6	BH 24 - 13 0.5'	Total/NA	Solid	8015B NM	72934
MB 880-72934/1-A	Method Blank	Total/NA	Solid	8015B NM	72934
LCS 880-72934/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	72934
LCSD 880-72934/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	72934
890-6149-1 MS	BH 24 - 10 0'	Total/NA	Solid	8015B NM	72934
890-6149-1 MSD	BH 24 - 10 0'	Total/NA	Solid	8015B NM	72934

Analysis Batch: 73553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Total/NA	Solid	8015 NM	
890-6149-2	BH 24 - 10 1'	Total/NA	Solid	8015 NM	
890-6149-3	BH 24 - 12 0'	Total/NA	Solid	8015 NM	
890-6149-4	BH 24 - 12 0.5'	Total/NA	Solid	8015 NM	
890-6149-5	BH 24 - 13 0'	Total/NA	Solid	8015 NM	
890-6149-6	BH 24 - 13 0.5'	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 72850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Soluble	Solid	DI Leach	
890-6149-2	BH 24 - 10 1'	Soluble	Solid	DI Leach	
890-6149-3	BH 24 - 12 0'	Soluble	Solid	DI Leach	
890-6149-4	BH 24 - 12 0.5'	Soluble	Solid	DI Leach	
890-6149-5	BH 24 - 13 0'	Soluble	Solid	DI Leach	
890-6149-6	BH 24 - 13 0.5'	Soluble	Solid	DI Leach	
MB 880-72850/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-72850/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-72850/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-6143-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-6143-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-6145-A-5-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-6145-A-5-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 72906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-1	BH 24 - 10 0'	Soluble	Solid	300.0	72850
890-6149-2	BH 24 - 10 1'	Soluble	Solid	300.0	72850
890-6149-3	BH 24 - 12 0'	Soluble	Solid	300.0	72850

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

HPLC/IC (Continued)

Analysis Batch: 72906 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-6149-4	BH 24 - 12 0.5'	Soluble	Solid	300.0	72850
890-6149-5	BH 24 - 13 0'	Soluble	Solid	300.0	72850
890-6149-6	BH 24 - 13 0.5'	Soluble	Solid	300.0	72850
MB 880-72850/1-A	Method Blank	Soluble	Solid	300.0	72850
LCS 880-72850/2-A	Lab Control Sample	Soluble	Solid	300.0	72850
LCSD 880-72850/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	72850
890-6143-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	72850
890-6143-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	72850
890-6145-A-5-B MS	Matrix Spike	Soluble	Solid	300.0	72850
890-6145-A-5-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	72850

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 10 0'

Lab Sample ID: 890-6149-1
Matrix: Solid
Date Collected: 02/08/24 10:00
Date Received: 02/09/24 08:54

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	73277	02/15/24 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73429	02/20/24 02:06	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73678	02/20/24 02:06	SM	EET MID
Total/NA	Analysis	8015 NM		1			73553	02/16/24 10:18	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 10:18	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	72850	02/12/24 10:30	SA	EET MID
Soluble	Analysis	300.0		10			72906	02/12/24 15:33	CH	EET MID

Client Sample ID: BH 24 - 10 1'

Lab Sample ID: 890-6149-2
Matrix: Solid
Date Collected: 02/08/24 10:10
Date Received: 02/09/24 08:54

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	73277	02/15/24 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73429	02/20/24 02:27	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73678	02/20/24 02:27	SM	EET MID
Total/NA	Analysis	8015 NM		1			73553	02/16/24 11:25	SM	EET MID
Total/NA	Prep	8015NM Prep			9.95 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 11:25	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	72850	02/12/24 10:30	SA	EET MID
Soluble	Analysis	300.0		1			72906	02/12/24 15:38	CH	EET MID

Client Sample ID: BH 24 - 12 0'

Lab Sample ID: 890-6149-3
Matrix: Solid
Date Collected: 02/08/24 10:40
Date Received: 02/09/24 08:54

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	73277	02/15/24 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73429	02/20/24 02:47	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73678	02/20/24 02:47	SM	EET MID
Total/NA	Analysis	8015 NM		1			73553	02/16/24 11:47	SM	EET MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 11:47	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	72850	02/12/24 10:30	SA	EET MID
Soluble	Analysis	300.0		1			72906	02/12/24 15:43	CH	EET MID

Client Sample ID: BH 24 - 12 0.5'

Lab Sample ID: 890-6149-4
Matrix: Solid
Date Collected: 02/08/24 10:50
Date Received: 02/09/24 08:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	73277	02/15/24 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73429	02/20/24 03:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73678	02/20/24 03:08	SM	EET MID

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 890-6149-1
SDG: 23 - 06066

Client Sample ID: BH 24 - 12 0.5'

Lab Sample ID: 890-6149-4

Date Collected: 02/08/24 10:50

Matrix: Solid

Date Received: 02/09/24 08:54

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			73553	02/16/24 12:09	SM	EET MID
Total/NA	Prep	8015NM Prep			10.07 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 12:09	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	72850	02/12/24 10:30	SA	EET MID
Soluble	Analysis	300.0		1			72906	02/12/24 15:47	CH	EET MID

Client Sample ID: BH 24 - 13 0'

Lab Sample ID: 890-6149-5

Date Collected: 02/08/24 11:00

Matrix: Solid

Date Received: 02/09/24 08:54

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	73277	02/15/24 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73429	02/20/24 04:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73678	02/20/24 04:58	SM	EET MID
Total/NA	Analysis	8015 NM		1			73553	02/16/24 12:31	SM	EET MID
Total/NA	Prep	8015NM Prep			10.09 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 12:31	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	72850	02/12/24 10:30	SA	EET MID
Soluble	Analysis	300.0		1			72906	02/12/24 15:52	CH	EET MID

Client Sample ID: BH 24 - 13 0.5'

Lab Sample ID: 890-6149-6

Date Collected: 02/08/24 11:10

Matrix: Solid

Date Received: 02/09/24 08:54

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	73277	02/15/24 15:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	73429	02/20/24 05:18	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			73678	02/20/24 05:18	SM	EET MID
Total/NA	Analysis	8015 NM		1			73553	02/16/24 12:53	SM	EET MID
Total/NA	Prep	8015NM Prep			9.94 g	10 mL	72934	02/12/24 14:51	TKC	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	73312	02/16/24 12:53	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	72850	02/12/24 10:30	SA	EET MID
Soluble	Analysis	300.0		1			72906	02/12/24 15:56	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 342

Job ID: 890-6149-1
SDG: 23 - 06066

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 342

Job ID: 890-6149-1
SDG: 23 - 06066

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 342

Job ID: 890-6149-1
SDG: 23 - 06066

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-6149-1	BH 24 - 10 0'	Solid	02/08/24 10:00	02/09/24 08:54	0
890-6149-2	BH 24 - 10 1'	Solid	02/08/24 10:10	02/09/24 08:54	1
890-6149-3	BH 24 - 12 0'	Solid	02/08/24 10:40	02/09/24 08:54	0
890-6149-4	BH 24 - 12 0.5'	Solid	02/08/24 10:50	02/09/24 08:54	0.5
890-6149-5	BH 24 - 13 0'	Solid	02/08/24 11:00	02/09/24 08:54	0
890-6149-6	BH 24 - 13 0.5'	Solid	02/08/24 11:10	02/09/24 08:54	0.5

nAPP 2334849928

Chain of Custody

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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: 108159001

www.xenco.com Page 1 of 1

Project Manager:	Sally Lanthan	Bill to: (if different)	Garrett Green
Company Name:	Ensolum / XTO	Company Name:	
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:	575 361 3561	Email:	

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	PLU 342	Turn Around	
Project Number:	23-06066	☑ Routine ☐ Rush	
Project Location:	PLU 342	Due Date:	
Sampler's Name:	Heriberto Costa	TAT starts the day received by the lab, if received by 4:30pm	
PO #:	108159001		

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TWN0013
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	7.2
Total Containers:		Corrected Temperature:	7.0

ANALYSIS REQUEST

890-6149 Chain of Custody

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2SO_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: BTEX (8021)	TPH (8015)	Cl	Sample Comments
BH24-10	0'	Soil	2-8-23	10:00	0						
BH24-10	1'			10:10	1						
BH24-12	0'			10:40	0						
BH24-12	0.5'			10:50	0.5						
BH24-13	0'			11:00	0						
BH24-13	0.5'	↓	↓	11:10	0.5			↓	↓	↓	

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 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

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		8:54 2/20	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Vertex

Job Number: 890-6149-1
SDG Number: 23 - 06066

Login Number: 6149
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: 890-6149-1
SDG Number: 23 - 06066

Login Number: 6149
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 02/12/24 08:17 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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ANALYTICAL REPORT

PREPARED FOR

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

Generated 3/26/2024 9:39:58 PM

JOB DESCRIPTION

XTO PLU 342

JOB NUMBER

885-1475-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

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

Authorization

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3/26/2024 9:39:58 PM

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

Client: Vertex
Project/Site: XTO PLU 342

Laboratory Job ID: 885-1475-1

Table of Contents

Definitions/Glossary

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Qualifiers

GC Semi VOA

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

Glossary

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

Case Narrative

Client: Vertex
Project: XTO PLU 342

Job ID: 885-1475-1

Job ID: 885-1475-1 Eurofins Albuquerque

Job Narrative
885-1475-1

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

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

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

Receipt
The sample was received on 3/20/2024 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 0.3°C.

GC VOA
Method 8021B: The method blank for preparation batch 880-76266 and analytical batch 880-76263 contained Benzene 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.

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 880-76189 and analytical batch 880-76256 was outside the upper control limits.

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

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

Client Sample Results

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Client Sample ID: BH24-03 0'
Date Collected: 03/15/24 10:30
Date Received: 03/20/24 08:00

Lab Sample ID: 885-1475-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/21/24 16:32	03/23/24 03:23	1
Toluene	ND		0.0020		mg/Kg		03/21/24 16:32	03/23/24 03:23	1
Ethylbenzene	ND		0.0020		mg/Kg		03/21/24 16:32	03/23/24 03:23	1
Xylenes, Total	ND		0.0040		mg/Kg		03/21/24 16:32	03/23/24 03:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*70 - 130*	*03/21/24 16:32*	*03/23/24 03:23*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*03/21/24 16:32*	*03/23/24 03:23*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/21/24 10:51	03/22/24 17:08	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/21/24 10:51	03/22/24 17:08	1
OII Range Organics (Over C28-C36)	ND		50		mg/Kg		03/21/24 10:51	03/22/24 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*84*		*70 - 130*	*03/21/24 10:51*	*03/22/24 17:08*	*1*
o-Terphenyl	*83*		*70 - 130*	*03/21/24 10:51*	*03/22/24 17:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**73**		5.0		mg/Kg			03/21/24 16:17	1

QC Sample Results

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-76244/5-A
Matrix: Solid
Analysis Batch: 76263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76244

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/21/24 16:32	03/22/24 22:14	1
Toluene	ND		0.0020		mg/Kg		03/21/24 16:32	03/22/24 22:14	1
Ethylbenzene	ND		0.0020		mg/Kg		03/21/24 16:32	03/22/24 22:14	1
Xylenes, Total	ND		0.0040		mg/Kg		03/21/24 16:32	03/22/24 22:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*75*		*70 - 130*	*03/21/24 16:32*	*03/22/24 22:14*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*	*03/21/24 16:32*	*03/22/24 22:14*	*1*

Lab Sample ID: LCS 880-76244/1-A
Matrix: Solid
Analysis Batch: 76263

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 76244

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.0910		mg/Kg		91	70 - 130		
Toluene			0.100	0.0936		mg/Kg		94	70 - 130		
Ethylbenzene			0.100	0.105		mg/Kg		105	70 - 130		
m-Xylene & p-Xylene			0.200	0.207		mg/Kg		104	70 - 130		
o-Xylene			0.100	0.102		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*

Lab Sample ID: LCSD 880-76244/2-A
Matrix: Solid
Analysis Batch: 76263

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 76244

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.0943		mg/Kg		94	70 - 130	4	35
Toluene			0.100	0.0945		mg/Kg		95	70 - 130	1	35
Ethylbenzene			0.100	0.106		mg/Kg		106	70 - 130	1	35
m-Xylene & p-Xylene			0.200	0.214		mg/Kg		107	70 - 130	3	35
o-Xylene			0.100	0.106		mg/Kg		106	70 - 130	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*

Lab Sample ID: MB 880-76266/5-A
Matrix: Solid
Analysis Batch: 76263

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76266

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0020		mg/Kg		03/22/24 09:04	03/22/24 11:39	1
Toluene	ND		0.0020		mg/Kg		03/22/24 09:04	03/22/24 11:39	1
Ethylbenzene	ND		0.0020		mg/Kg		03/22/24 09:04	03/22/24 11:39	1
Xylenes, Total	ND		0.0040		mg/Kg		03/22/24 09:04	03/22/24 11:39	1

QC Sample Results

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*71*		*70 - 130*	*03/22/24 09:04*	*03/22/24 11:39*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*03/22/24 09:04*	*03/22/24 11:39*	*1*

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

Lab Sample ID: MB 880-76189/1-A
Matrix: Solid
Analysis Batch: 76256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 76189

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		50		mg/Kg		03/21/24 10:51	03/22/24 07:39	1
Diesel Range Organics (Over C10-C28)	ND		50		mg/Kg		03/21/24 10:51	03/22/24 07:39	1
Oil Range Organics (Over C28-C36)	ND		50		mg/Kg		03/21/24 10:51	03/22/24 07:39	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*175*	*S1+*	*70 - 130*	*03/21/24 10:51*	*03/22/24 07:39*	*1*
o-Terphenyl	*188*	*S1+*	*70 - 130*	*03/21/24 10:51*	*03/22/24 07:39*	*1*

Lab Sample ID: LCS 880-76189/2-A
Matrix: Solid
Analysis Batch: 76256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 76189

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1080		mg/Kg		108	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1010		mg/Kg		101	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	*112*		*70 - 130*
o-Terphenyl	*127*		*70 - 130*

Lab Sample ID: LCSD 880-76189/3-A
Matrix: Solid
Analysis Batch: 76256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 76189

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1160		mg/Kg		116	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	1020		mg/Kg		102	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	*110*		*70 - 130*
o-Terphenyl	*124*		*70 - 130*

QC Sample Results

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-76153/1-A
Matrix: Solid
Analysis Batch: 76212

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		5.0		mg/Kg			03/21/24 13:52	1

Lab Sample ID: LCS 880-76153/2-A
Matrix: Solid
Analysis Batch: 76212

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	239		mg/Kg		95	90 - 110		

Lab Sample ID: LCSD 880-76153/3-A
Matrix: Solid
Analysis Batch: 76212

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	238		mg/Kg		95	90 - 110	0	20

QC Association Summary

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

GC VOA

Prep Batch: 76244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1475-1	BH24-03 0'	Total/NA	Solid	5035	
MB 880-76244/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-76244/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-76244/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 76263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1475-1	BH24-03 0'	Total/NA	Solid	8021B	76244
MB 880-76244/5-A	Method Blank	Total/NA	Solid	8021B	76244
MB 880-76266/5-A	Method Blank	Total/NA	Solid	8021B	76266
LCS 880-76244/1-A	Lab Control Sample	Total/NA	Solid	8021B	76244
LCSD 880-76244/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	76244

Prep Batch: 76266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-76266/5-A	Method Blank	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 76189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1475-1	BH24-03 0'	Total/NA	Solid	8015NM Prep	
MB 880-76189/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-76189/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-76189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 76256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1475-1	BH24-03 0'	Total/NA	Solid	8015B NM	76189
MB 880-76189/1-A	Method Blank	Total/NA	Solid	8015B NM	76189
LCS 880-76189/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	76189
LCSD 880-76189/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	76189

HPLC/IC

Leach Batch: 76153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1475-1	BH24-03 0'	Soluble	Solid	DI Leach	
MB 880-76153/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-76153/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-76153/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 76212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-1475-1	BH24-03 0'	Soluble	Solid	300.0	76153
MB 880-76153/1-A	Method Blank	Soluble	Solid	300.0	76153
LCS 880-76153/2-A	Lab Control Sample	Soluble	Solid	300.0	76153
LCSD 880-76153/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	76153

Lab Chronicle

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Client Sample ID: BH24-03 0'

Date Collected: 03/15/24 10:30
Date Received: 03/20/24 08:00

Lab Sample ID: 885-1475-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			76244	MNR	EET MID	03/21/24 16:32
Total/NA	Analysis	8021B		1	76263	MNR	EET MID	03/23/24 03:23
Total/NA	Prep	8015NM Prep			76189	TKC	EET MID	03/21/24 10:51
Total/NA	Analysis	8015B NM		1	76256	SM	EET MID	03/22/24 17:08
Soluble	Leach	DI Leach			76153	SA	EET MID	03/21/24 08:27
Soluble	Analysis	300.0		1	76212	SMC	EET MID	03/21/24 16:17

Laboratory References:

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

Accreditation/Certification Summary

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Laboratory: Eurofins Midland

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

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

Method Summary

Client: Vertex
Project/Site: XTO PLU 342

Job ID: 885-1475-1

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (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.

Laboratory References:

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

eurofins Environment Testing Xenco

CC: SCattar@vertex.ca for Final Report

Chain of Custody

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

885-1475 COC

REMARKS: Direct Bill to XTO Energy, Inc., Cost Center #: 1081591001, Incident #: nAPP2334849928 CC.Sally Cattar (scattar@vertex.ca) for Final Report.

www.xenco.com Page 1 of 1

Project Manager	Sally Cattar (SCattar@vertex.ca)	Bill to (if different)	XTO Energy, Inc.
Company Name	Vertex Resource Services	Company Name	XTO Energy, Inc.
Address	3101 Boyd Drive	Address	3104 E. Greene St
City, State ZIP	Carlsbad NM, 88220	City, State ZIP	Carlsbad NM, 88220
Phone	575.725.5001	Email	CC: scattar@vertex.ca for Final Report
Project Name	XTO PLU 342	Turn Around	
Project Number	23E-06066	Routine / Rush	
Project Location		Due Date	5 DAY
Sampler's Name	Deusavan Costa	TAT starts the day received by the lab, if received by 4:30pm	
PO #			

Work Order Comments

Program: UST/PST PRP Brownfields RR Superfund

State of Project:

Reporting Level II Level III PST/UST TRR Level

Deliverables EDD ADaPT Other

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

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2SO_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: NaSO3
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth (ft)	Grab/ Comp	# of Cont	Pres. Code	BTEX (8021)	TPH:8015D(GRO / DRO / MRO)	Chloride	Sample Comments
BH24-03 0	Soil	03.15.24	10:30	0	Grab			X	X	X	

Parameters

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 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 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
1		3/19/24, 9:30	2		3/20/24 0800
3			4		
5			6		

6.3-0=0.3

Yogi

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-1475-1

Login Number: 1475 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Proctor, Nancy

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-1475-1

Login Number: 1475
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 03/21/24 10:45 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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ANALYTICAL REPORT

PREPARED FOR

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

Generated 5/24/2024 11:09:02 AM

JOB DESCRIPTION

PLU 342

JOB NUMBER

885-4188-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

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

Authorization

Generated
5/24/2024 11:09:02 AM

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

Client: Vertex
Project/Site: PLU 342

Laboratory Job ID: 885-4188-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-4188-1
Project/Site: PLU 342

Qualifiers

GC VOA

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

Glossary

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

Case Narrative

Client: Vertex
Project: PLU 342

Job ID: 885-4188-1

Job ID: 885-4188-1 Eurofins Albuquerque

Job Narrative
885-4188-1

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 5/9/2024 7:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°C.

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

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

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

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

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

Client Sample ID: BH24-02 2'

Date Collected: 05/07/24 09:45
Date Received: 05/09/24 07:45

Lab Sample ID: 885-4188-1

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		05/09/24 15:25	05/10/24 22:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*05/09/24 15:25*	*05/10/24 22:32*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		05/09/24 15:25	05/10/24 22:32	1
Ethylbenzene	ND		0.050		mg/Kg		05/09/24 15:25	05/10/24 22:32	1
Toluene	ND		0.050		mg/Kg		05/09/24 15:25	05/10/24 22:32	1
Xylenes, Total	ND		0.099		mg/Kg		05/09/24 15:25	05/10/24 22:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*05/09/24 15:25*	*05/10/24 22:32*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		05/10/24 08:59	05/10/24 11:41	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		05/10/24 08:59	05/10/24 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*05/10/24 08:59*	*05/10/24 11:41*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		05/10/24 08:04	05/10/24 17:22	20

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

Client Sample ID: BH24-02 4'

Date Collected: 05/07/24 09:50
Date Received: 05/09/24 07:45

Lab Sample ID: 885-4188-2

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.8		mg/Kg		05/09/24 15:25	05/10/24 23:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*05/09/24 15:25*	*05/10/24 23:42*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		05/09/24 15:25	05/10/24 23:42	1
Ethylbenzene	ND		0.048		mg/Kg		05/09/24 15:25	05/10/24 23:42	1
Toluene	ND		0.048		mg/Kg		05/09/24 15:25	05/10/24 23:42	1
Xylenes, Total	ND		0.096		mg/Kg		05/09/24 15:25	05/10/24 23:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*	*05/09/24 15:25*	*05/10/24 23:42*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		05/10/24 08:59	05/10/24 11:52	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		05/10/24 08:59	05/10/24 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*105*		*62 - 134*	*05/10/24 08:59*	*05/10/24 11:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		05/10/24 08:04	05/10/24 17:38	20

Client Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

Client Sample ID: BH24-10 2'

Date Collected: 05/07/24 10:00
Date Received: 05/09/24 07:45

Lab Sample ID: 885-4188-3

Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		4.7		mg/Kg		05/09/24 15:25	05/11/24 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*05/09/24 15:25*	*05/11/24 00:52*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		05/09/24 15:25	05/11/24 00:52	1
Ethylbenzene	ND		0.047		mg/Kg		05/09/24 15:25	05/11/24 00:52	1
Toluene	ND		0.047		mg/Kg		05/09/24 15:25	05/11/24 00:52	1
Xylenes, Total	ND		0.094		mg/Kg		05/09/24 15:25	05/11/24 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*48 - 145*	*05/09/24 15:25*	*05/11/24 00:52*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		05/10/24 08:59	05/10/24 12:02	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		05/10/24 08:59	05/10/24 12:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*05/10/24 08:59*	*05/10/24 12:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		05/10/24 08:04	05/10/24 18:23	20

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

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

Lab Sample ID: MB 885-4694/1-A
Matrix: Solid
Analysis Batch: 4841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4694

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		mg/Kg		05/09/24 15:25	05/10/24 11:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*35 - 166*	*05/09/24 15:25*	*05/10/24 11:35*	*1*

Lab Sample ID: LCS 885-4694/2-A
Matrix: Solid
Analysis Batch: 4841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4694

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			25.0	23.2		mg/Kg		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*198*	*S1+*	*35 - 166*

Lab Sample ID: 885-4188-1 MS
Matrix: Solid
Analysis Batch: 4841

Client Sample ID: BH24-02 2'
Prep Type: Total/NA
Prep Batch: 4694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]	ND		24.6	25.8		mg/Kg		105	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*217*	*S1+*	*35 - 166*

Lab Sample ID: 885-4188-1 MSD
Matrix: Solid
Analysis Batch: 4841

Client Sample ID: BH24-02 2'
Prep Type: Total/NA
Prep Batch: 4694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics [C6 - C10]	ND		24.6	25.3		mg/Kg		103	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*212*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-4694/1-A
Matrix: Solid
Analysis Batch: 4843

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4694

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		05/09/24 15:25	05/10/24 11:35	1
Ethylbenzene	ND		0.050		mg/Kg		05/09/24 15:25	05/10/24 11:35	1
Toluene	ND		0.050		mg/Kg		05/09/24 15:25	05/10/24 11:35	1

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

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

Lab Sample ID: MB 885-4694/1-A
Matrix: Solid
Analysis Batch: 4843

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4694

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10		mg/Kg		05/09/24 15:25	05/10/24 11:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*	*05/09/24 15:25*	*05/10/24 11:35*	*1*

Lab Sample ID: LCS 885-4694/3-A
Matrix: Solid
Analysis Batch: 4843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4694

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.958		mg/Kg		96	70 - 130		
Ethylbenzene			1.00	0.923		mg/Kg		92	70 - 130		
m,p-Xylene			2.00	1.89		mg/Kg		95	70 - 130		
o-Xylene			1.00	0.925		mg/Kg		92	70 - 130		
Toluene			1.00	0.912		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*

Lab Sample ID: 885-4188-2 MS
Matrix: Solid
Analysis Batch: 4843

Client Sample ID: BH24-02 4'
Prep Type: Total/NA
Prep Batch: 4694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.956	0.921		mg/Kg		96	70 - 130		
Ethylbenzene	ND		0.956	0.902		mg/Kg		94	70 - 130		
m,p-Xylene	ND		1.91	1.83		mg/Kg		95	70 - 130		
o-Xylene	ND		0.956	0.904		mg/Kg		95	70 - 130		
Toluene	ND		0.956	0.891		mg/Kg		93	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

Lab Sample ID: 885-4188-2 MSD
Matrix: Solid
Analysis Batch: 4843

Client Sample ID: BH24-02 4'
Prep Type: Total/NA
Prep Batch: 4694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.968	0.970		mg/Kg		100	70 - 130	5	20
Ethylbenzene	ND		0.968	0.959		mg/Kg		99	70 - 130	6	20
m,p-Xylene	ND		1.94	1.93		mg/Kg		99	70 - 130	5	20
o-Xylene	ND		0.968	0.955		mg/Kg		99	70 - 130	6	20
Toluene	ND		0.968	0.928		mg/Kg		96	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

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

Lab Sample ID: MB 885-4729/1-A
Matrix: Solid
Analysis Batch: 4816

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4729

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		05/10/24 08:59	05/10/24 11:09	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		05/10/24 08:59	05/10/24 11:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*05/10/24 08:59*	*05/10/24 11:09*	*1*

Lab Sample ID: LCS 885-4729/2-A
Matrix: Solid
Analysis Batch: 4816

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4729

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	45.6		mg/Kg		91	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*114*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-4723/1-A
Matrix: Solid
Analysis Batch: 4796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 4723

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		05/10/24 08:04	05/10/24 10:32	1

Lab Sample ID: LCS 885-4723/2-A
Matrix: Solid
Analysis Batch: 4796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 4723

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.2		mg/Kg		94	90 - 110		

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

GC VOA

Prep Batch: 4694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	5030C	
885-4188-2	BH24-02 4'	Total/NA	Solid	5030C	
885-4188-3	BH24-10 2'	Total/NA	Solid	5030C	
MB 885-4694/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-4694/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-4694/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-4188-1 MS	BH24-02 2'	Total/NA	Solid	5030C	
885-4188-1 MSD	BH24-02 2'	Total/NA	Solid	5030C	
885-4188-2 MS	BH24-02 4'	Total/NA	Solid	5030C	
885-4188-2 MSD	BH24-02 4'	Total/NA	Solid	5030C	

Analysis Batch: 4841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	8015D	4694
885-4188-2	BH24-02 4'	Total/NA	Solid	8015D	4694
885-4188-3	BH24-10 2'	Total/NA	Solid	8015D	4694
MB 885-4694/1-A	Method Blank	Total/NA	Solid	8015D	4694
LCS 885-4694/2-A	Lab Control Sample	Total/NA	Solid	8015D	4694
885-4188-1 MS	BH24-02 2'	Total/NA	Solid	8015D	4694
885-4188-1 MSD	BH24-02 2'	Total/NA	Solid	8015D	4694

Analysis Batch: 4843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	8021B	4694
885-4188-2	BH24-02 4'	Total/NA	Solid	8021B	4694
885-4188-3	BH24-10 2'	Total/NA	Solid	8021B	4694
MB 885-4694/1-A	Method Blank	Total/NA	Solid	8021B	4694
LCS 885-4694/3-A	Lab Control Sample	Total/NA	Solid	8021B	4694
885-4188-2 MS	BH24-02 4'	Total/NA	Solid	8021B	4694
885-4188-2 MSD	BH24-02 4'	Total/NA	Solid	8021B	4694

GC Semi VOA

Prep Batch: 4729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	SHAKE	
885-4188-2	BH24-02 4'	Total/NA	Solid	SHAKE	
885-4188-3	BH24-10 2'	Total/NA	Solid	SHAKE	
MB 885-4729/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-4729/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 4816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	8015D	4729
885-4188-2	BH24-02 4'	Total/NA	Solid	8015D	4729
885-4188-3	BH24-10 2'	Total/NA	Solid	8015D	4729
MB 885-4729/1-A	Method Blank	Total/NA	Solid	8015D	4729
LCS 885-4729/2-A	Lab Control Sample	Total/NA	Solid	8015D	4729

QC Association Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

HPLC/IC

Prep Batch: 4723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	300_Prep	
885-4188-2	BH24-02 4'	Total/NA	Solid	300_Prep	
885-4188-3	BH24-10 2'	Total/NA	Solid	300_Prep	
MB 885-4723/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-4723/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 4796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4188-1	BH24-02 2'	Total/NA	Solid	300.0	4723
885-4188-2	BH24-02 4'	Total/NA	Solid	300.0	4723
885-4188-3	BH24-10 2'	Total/NA	Solid	300.0	4723
MB 885-4723/1-A	Method Blank	Total/NA	Solid	300.0	4723
LCS 885-4723/2-A	Lab Control Sample	Total/NA	Solid	300.0	4723

Lab Chronicle

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

Client Sample ID: BH24-02 2'

Lab Sample ID: 885-4188-1

Date Collected: 05/07/24 09:45
Matrix: Solid
Date Received: 05/09/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			4694	JP	EET ALB	05/09/24 15:25
Total/NA	Analysis	8015D		1	4841	JP	EET ALB	05/10/24 22:32
Total/NA	Prep	5030C			4694	JP	EET ALB	05/09/24 15:25
Total/NA	Analysis	8021B		1	4843	JP	EET ALB	05/10/24 22:32
Total/NA	Prep	SHAKE			4729	JU	EET ALB	05/10/24 08:59
Total/NA	Analysis	8015D		1	4816	JU	EET ALB	05/10/24 11:41
Total/NA	Prep	300_Prep			4723	JT	EET ALB	05/10/24 08:04
Total/NA	Analysis	300.0		20	4796	RC	EET ALB	05/10/24 17:22

Client Sample ID: BH24-02 4'

Lab Sample ID: 885-4188-2

Date Collected: 05/07/24 09:50
Matrix: Solid
Date Received: 05/09/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			4694	JP	EET ALB	05/09/24 15:25
Total/NA	Analysis	8015D		1	4841	JP	EET ALB	05/10/24 23:42
Total/NA	Prep	5030C			4694	JP	EET ALB	05/09/24 15:25
Total/NA	Analysis	8021B		1	4843	JP	EET ALB	05/10/24 23:42
Total/NA	Prep	SHAKE			4729	JU	EET ALB	05/10/24 08:59
Total/NA	Analysis	8015D		1	4816	JU	EET ALB	05/10/24 11:52
Total/NA	Prep	300_Prep			4723	JT	EET ALB	05/10/24 08:04
Total/NA	Analysis	300.0		20	4796	RC	EET ALB	05/10/24 17:38

Client Sample ID: BH24-10 2'

Lab Sample ID: 885-4188-3

Date Collected: 05/07/24 10:00
Matrix: Solid
Date Received: 05/09/24 07:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			4694	JP	EET ALB	05/09/24 15:25
Total/NA	Analysis	8015D		1	4841	JP	EET ALB	05/11/24 00:52
Total/NA	Prep	5030C			4694	JP	EET ALB	05/09/24 15:25
Total/NA	Analysis	8021B		1	4843	JP	EET ALB	05/11/24 00:52
Total/NA	Prep	SHAKE			4729	JU	EET ALB	05/10/24 08:59
Total/NA	Analysis	8015D		1	4816	JU	EET ALB	05/10/24 12:02
Total/NA	Prep	300_Prep			4723	JT	EET ALB	05/10/24 08:04
Total/NA	Analysis	300.0		20	4796	RC	EET ALB	05/10/24 18:23

Laboratory References:

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

Accreditation/Certification Summary

Client: Vertex
Project/Site: PLU 342

Job ID: 885-4188-1

Laboratory: Eurofins Albuquerque

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

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

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

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

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Vertex (XTO)

Mailing Address: on file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 72 hr

Project Name: PLU 342

Project #: 23E-060616

Project Manager: S. Carttar

Sampler: A. Monu

On Ice: ☐ Yes ☐ No

# of Coolers: 1 (Monty)

Cooler Temp(Including CF): 1.6-0=1.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871
Tel. 505-345-3975 Fax 505-345-4107
885-4188 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	CDF, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/7/24	9:45	soil	BH24-02 2'	4oz jar	ice		X	X					X			
1	9:50	1	BH24-02 4'	1	1		1	1					1			
1	10:00	1	BH24-10 2'	1	1		1	1					1			

Date	Time	Relinquished by:	Received by:	Via.	Date	Time
5/8/24	945				5/8/24	945
5/8/24	1900			Courier	5/9/24	7:45

Remarks: please email results to: scarttar@vertex.ca

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

Login Sample Receipt Checklist

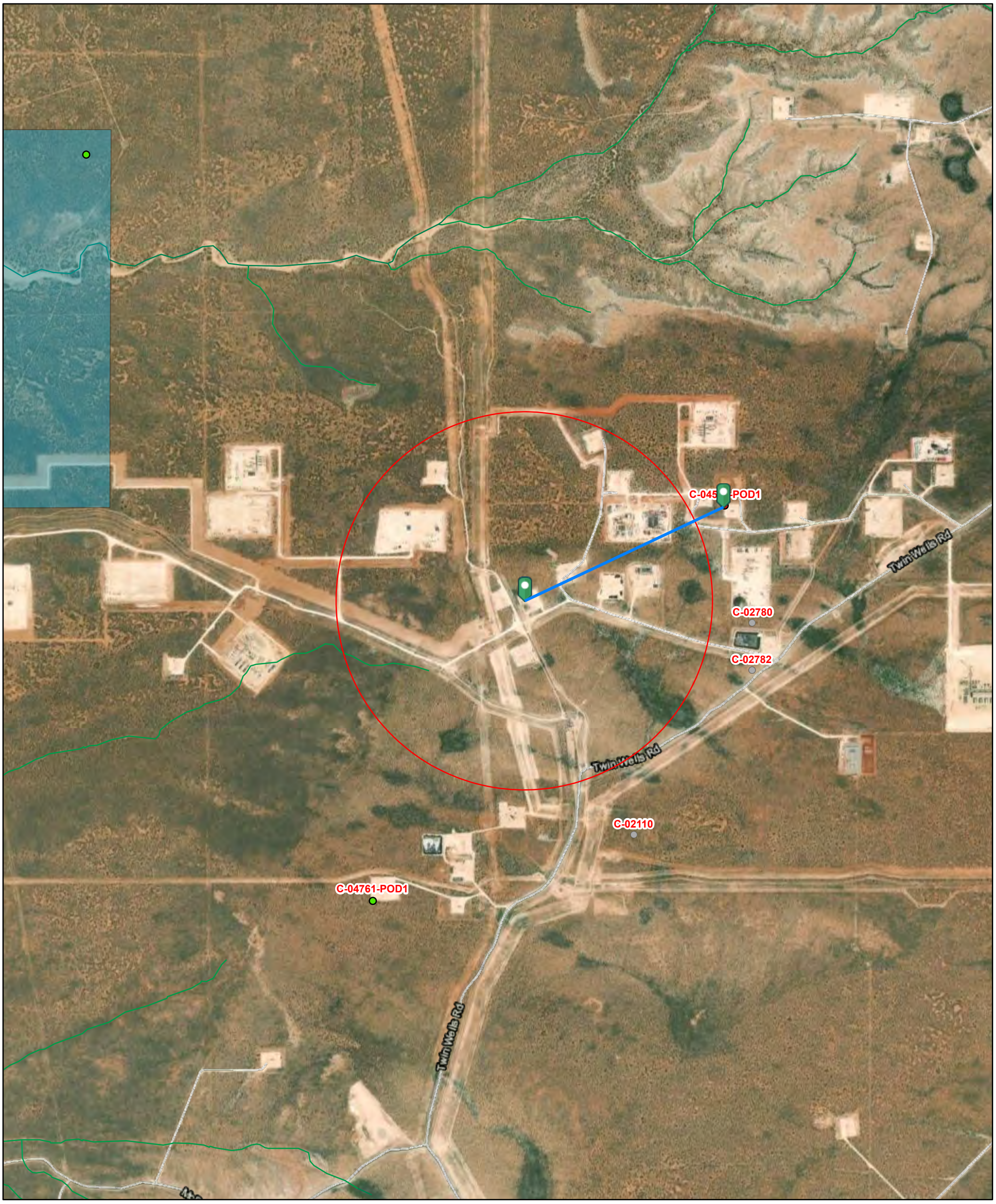
Client: Vertex Job Number: 885-4188-1

Login Number: 4188 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

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

ATTACHMENT 5

OSE Wells 0.5 mile



3/31/2024, 11:47:01 AM

Override 1

GIS WATERS PODs

Pending

Plugged

OSE District Boundary

Water Right Regulations

Artesian Planning Area

New Mexico State Trust Lands

Both Estates

NHD Flowlines

Artificial Path

Connector

Stream River

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

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

Online web user

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

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

OSE DIT JAN 24 2022 PM3:00

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD1 (BH-01)	n/a	C-4575

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

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

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	12	38.03	N
	LONGITUDE	103	50	58.70	W

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

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

NW NE Sec. 23 T24S R30E, NMPM

2. DRILLING & CASING INFORMATION

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

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
1-4-2022	1-4-2022	temporary well material	105	n/a

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

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

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

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

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	105	±8.5	Boring- HSA	--	--	--	--

3. ANNULAR MATERIAL

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

FOR OSE INTERNAL USE

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

FILE NO. C-4575	POD NO. 1	TRN NO. 709414
LOCATION 2-1-1 24S-30E-23	WELL TAG ID NO. —	PAGE 1 OF 2

MON

OSE DII JAN 24 2022 PM 3:00

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	1	1	Caliche, White, Dry	Y ✓N	
1	20	19	Sand, very fine grained, well graded, with caliche, Reddish Brown-Light Brown	Y N	
20	30	20	Caliche, consolidated with silt and some gravel, Off-White, Dry	Y ✓N	
30	50	20	Sand, very fine grained, well graded, with gravel, Light Brown	Y ✓N	
50	75	25	Sand, very fine grained, well graded, with gravel, Reddish Brown, slight moist	Y ✓N	
75	105	30	Sand, very fine grained, poorly graded, Reddish Brown, slight moist	Y ✓N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

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

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

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

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

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

Shane Eldridge, Cameron Pruitt, Carmelo Trevino

6. SIGNATURE

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

Jack Atkins — Jackie D. Atkins — 1/21/2022

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

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

FILE NO. C-4573	POD NO. 1	TRN NO. 709414	
LOCATION 2-1-1 24S-30E-23		WELL TAG ID NO.	PAGE 2 OF 2

MON

OSE_Well Record and Log_-forsign

Final Audit Report 2022-01-22

Created:	2022-01-21
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAHFW29aZiQH1D931B0LxyAz3o1wYi88ri

"OSE_Well Record and Log_-forsign" History

OSE DIT JAN 24 2022 PM3:00

Document created by Lucas Middleton (lucas@atkinseng.com)
2022-01-21 - 10:47:34 PM GMT- IP address: 69.21.248.123

Document emailed to Jack Atkins (jack@atkinseng.com) for signature
2022-01-21 - 10:48:19 PM GMT

Email viewed by Jack Atkins (jack@atkinseng.com)
2022-01-21 - 10:49:13 PM GMT- IP address: 64.90.153.232

Document e-signed by Jack Atkins (jack@atkinseng.com)
Signature Date: 2022-01-22 - 0:16:23 AM GMT - Time Source: server- IP address: 64.90.153.232

Agreement completed.
2022-01-22 - 0:16:23 AM GMT

Adobe Sign

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 04575 **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 INC

Contact: ADRIAN BAKER

User: WSP USA

Contact: KALEI JENNINGS

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	709414	EXPL	2021-10-06	PMT	LOG	C 04575 POD1	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04575 POD1	NA		1	1	2	23	24S	30E	608412	3564355	BH01

OSE POD Location Map

1/16/2024, 4:39:00 PM

Override 1

GIS WATERS PODs

Pending

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

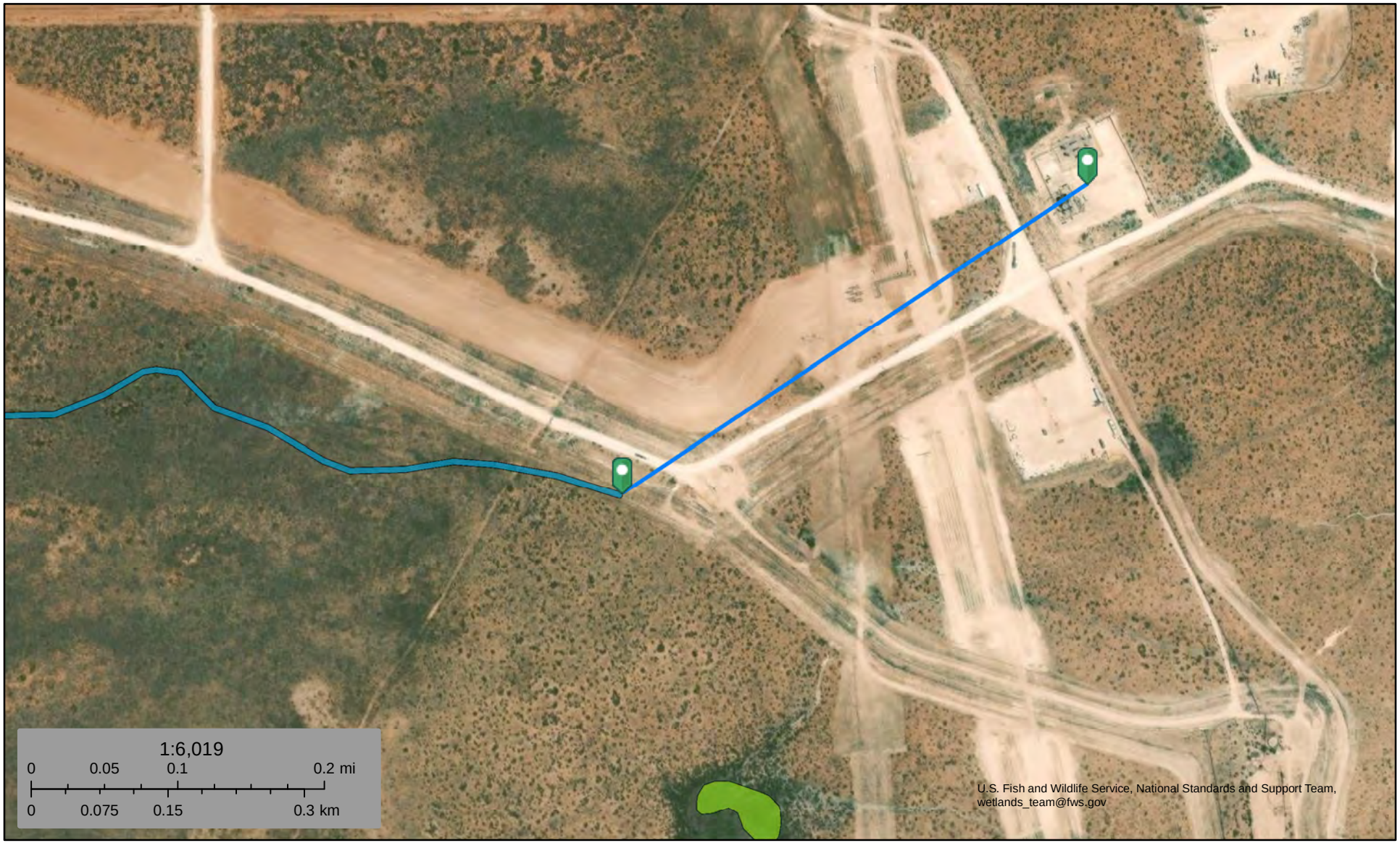
Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar

Online web user

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

PLU342 R45BJ 1743FT



January 16, 2024

Wetlands

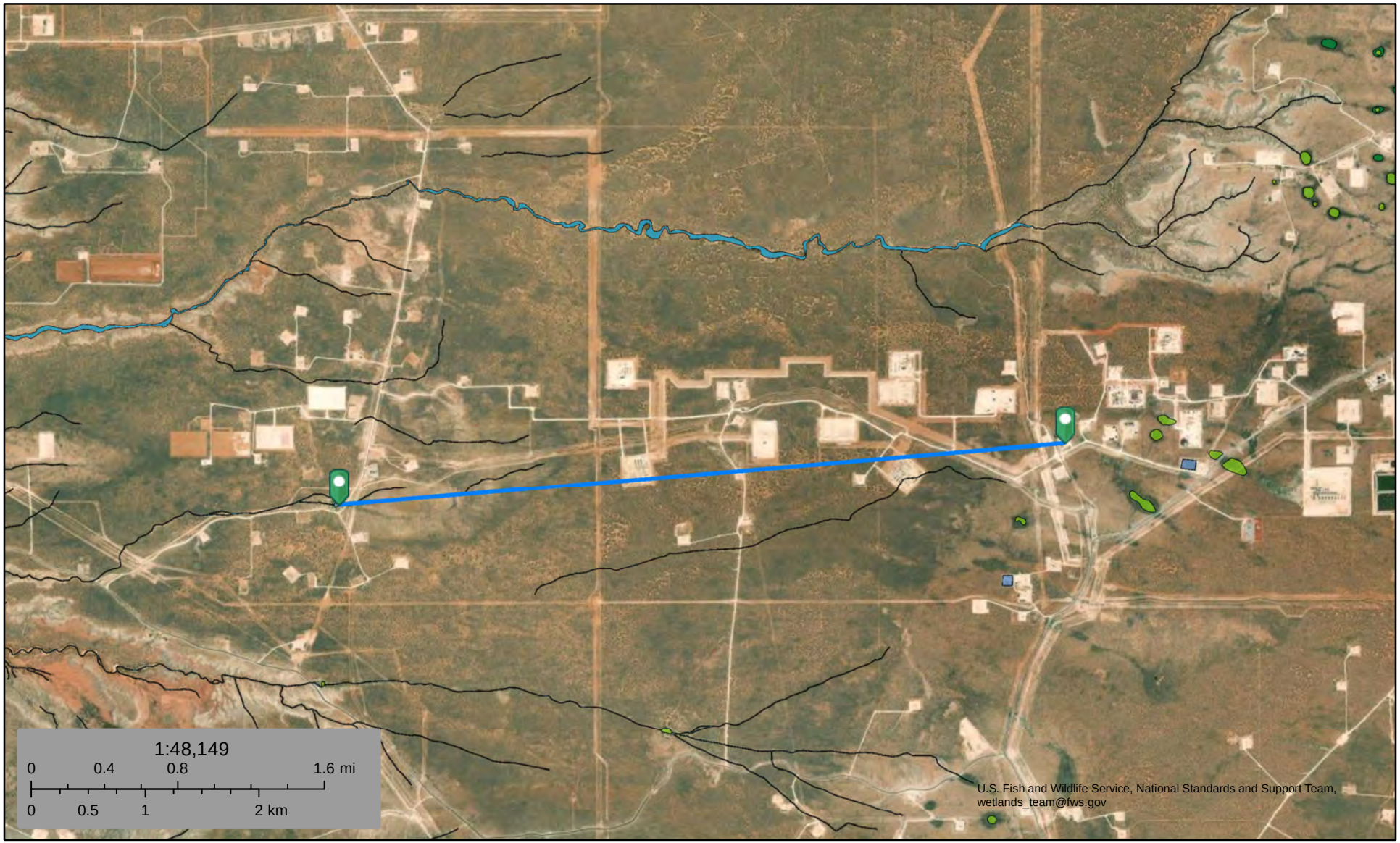
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

PLU 17794



January 16, 2024

Wetlands

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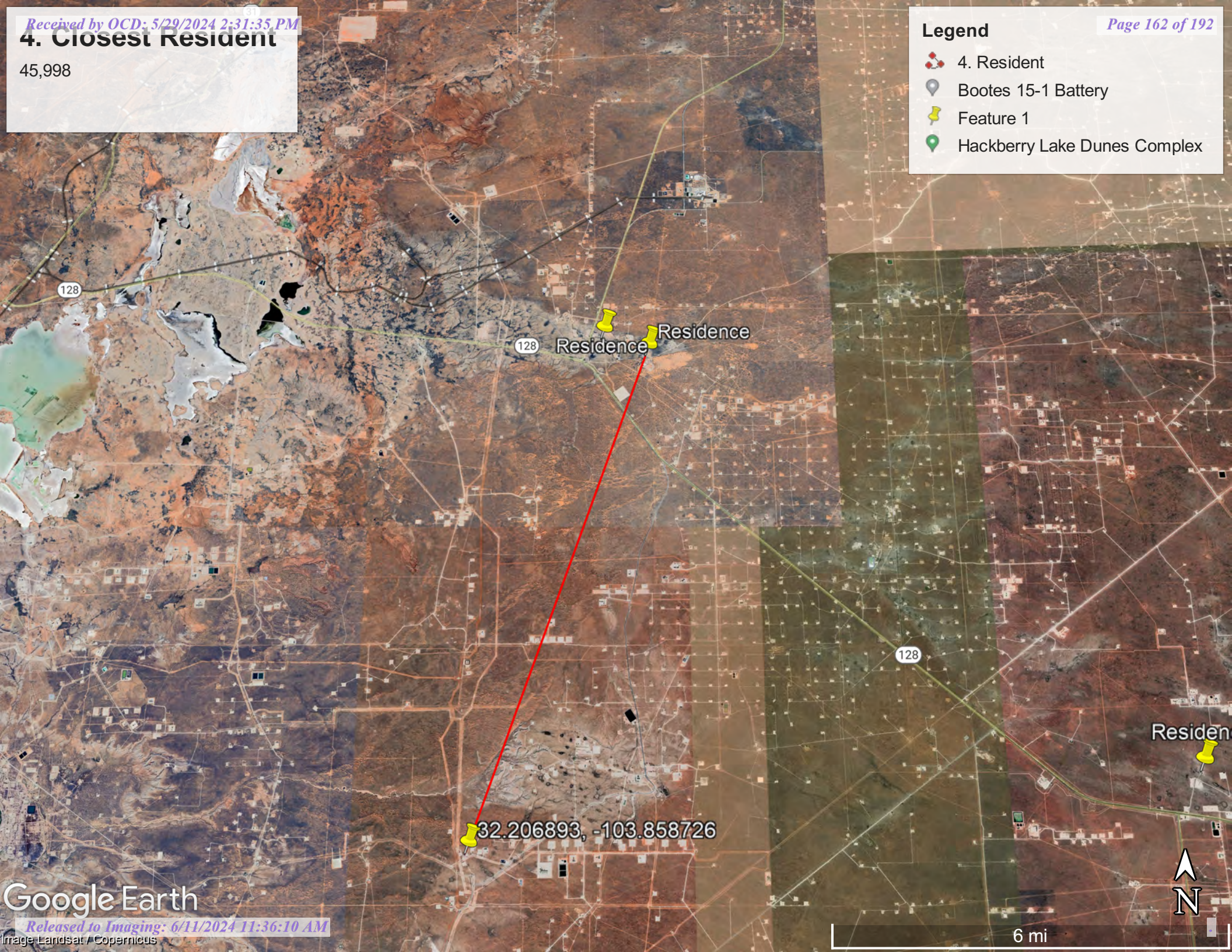
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

4. Closest Resident

45,998



5. Closest Spring/Well

66902

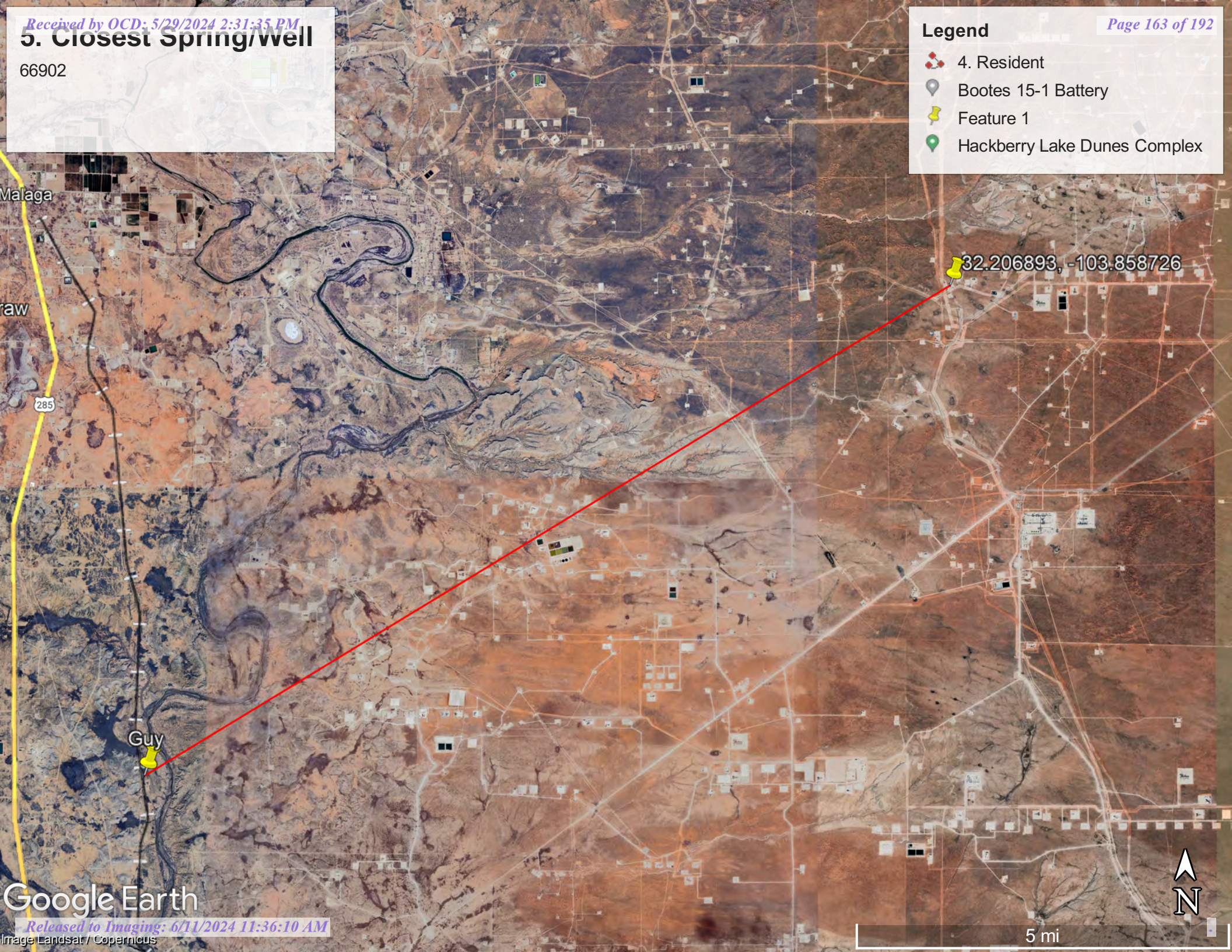


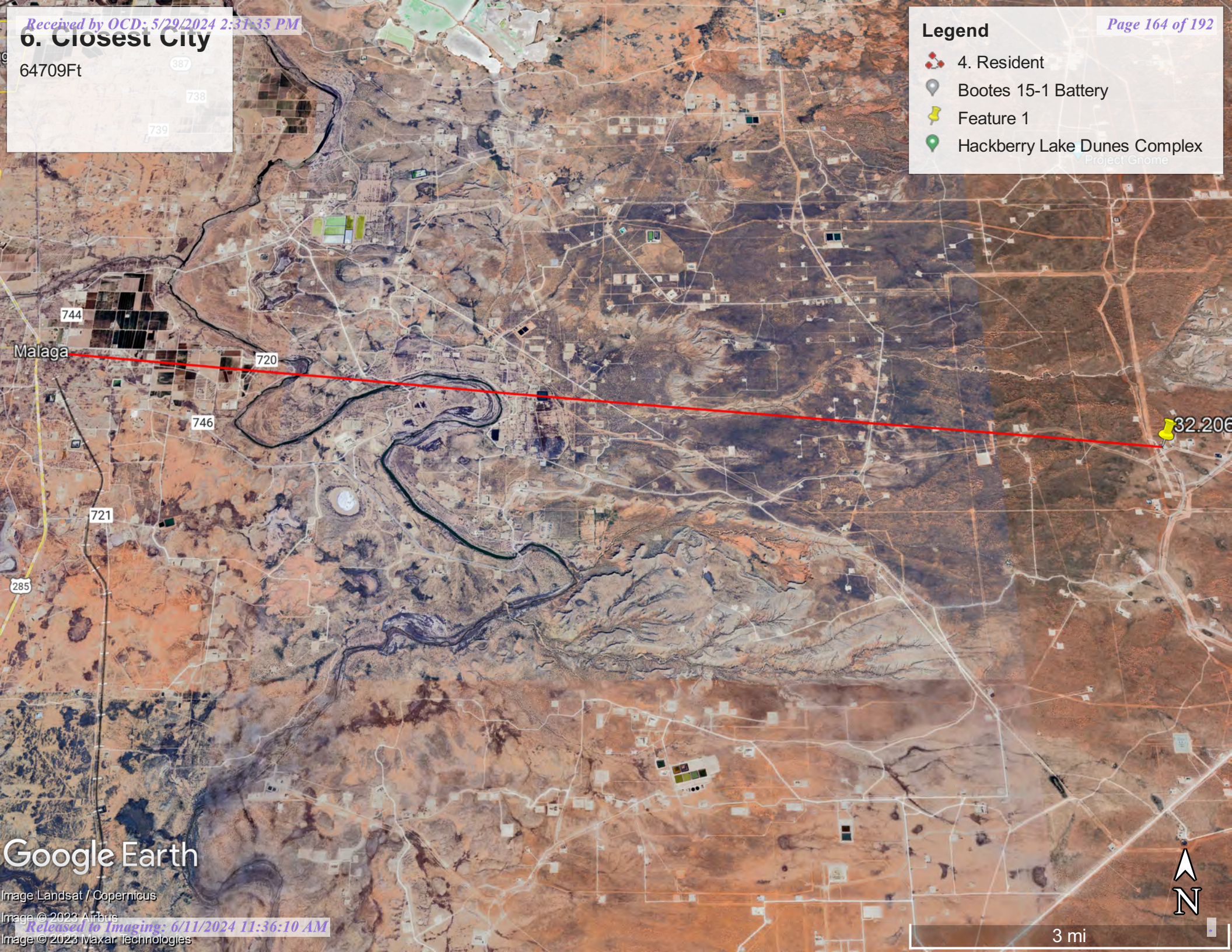
Image Landsat / Copernicus

6. Closest City

64709Ft

Legend

- 4. Resident
- Bootes 15-1 Battery
- Feature 1
- Hackberry Lake Dunes Complex



U.S. Fish and Wildlife Service
National Wetlands Inventory

PLU342 PEMJ1 2323

January 16, 2024

Wetlands

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

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

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

PLU342 54384

1/16/2024, 3:47:49 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Registered Mines

- Aggregate, Stone etc.
- Potash
- Salt

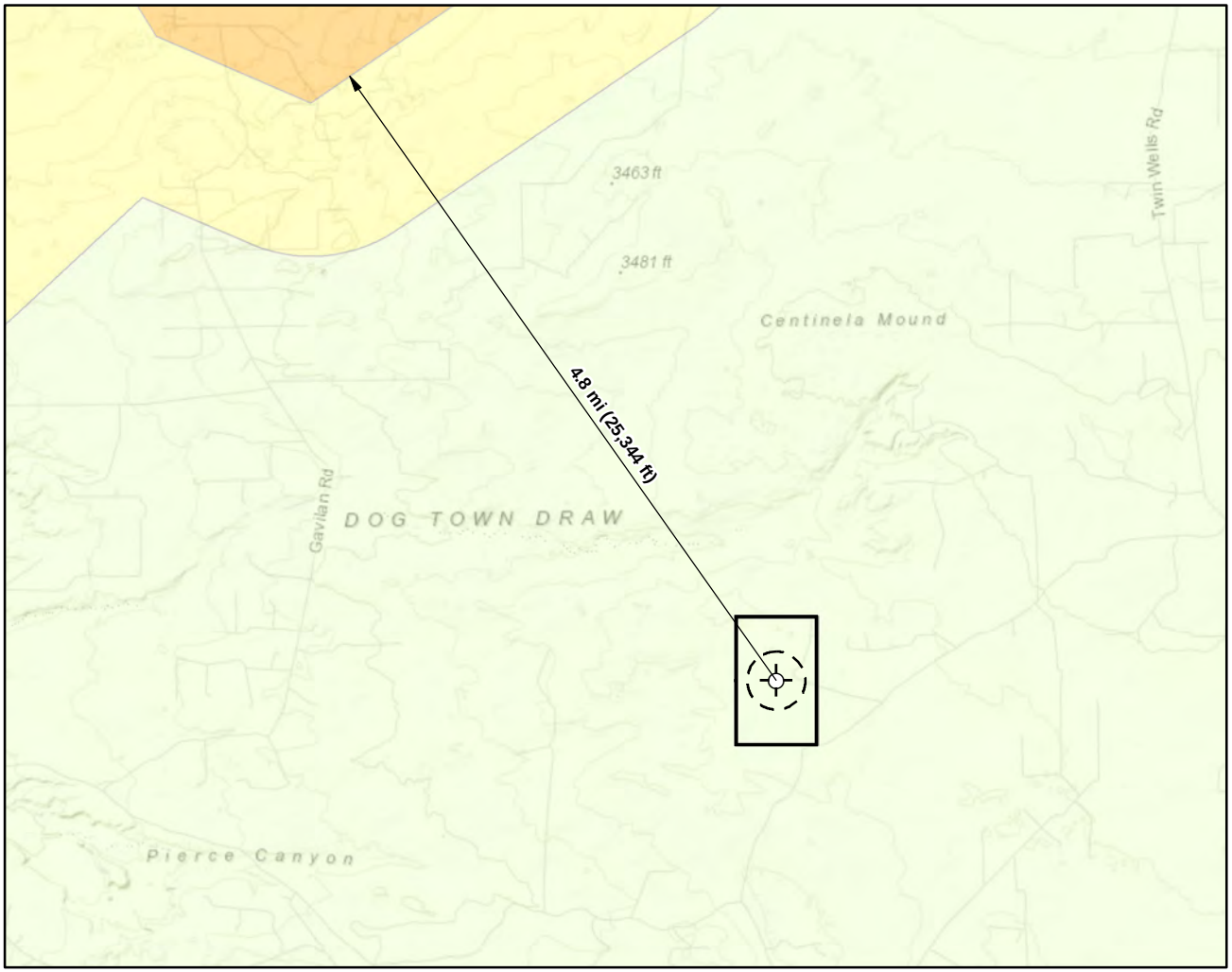
Land Ownership

- BLM
- DOE
- P
- S
- PLSS Townships

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

EMNRD MMD GIS Coordinator

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



Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft

VERTEX

Map Center:
Lat/Long
32.225441, -103.876631

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

N

Karst Potential Map
Poker Lake Unit 342 Battery

FIGURE:
X

XTO ENERGY

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

Note: Inset Map, Esri 2023; 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.

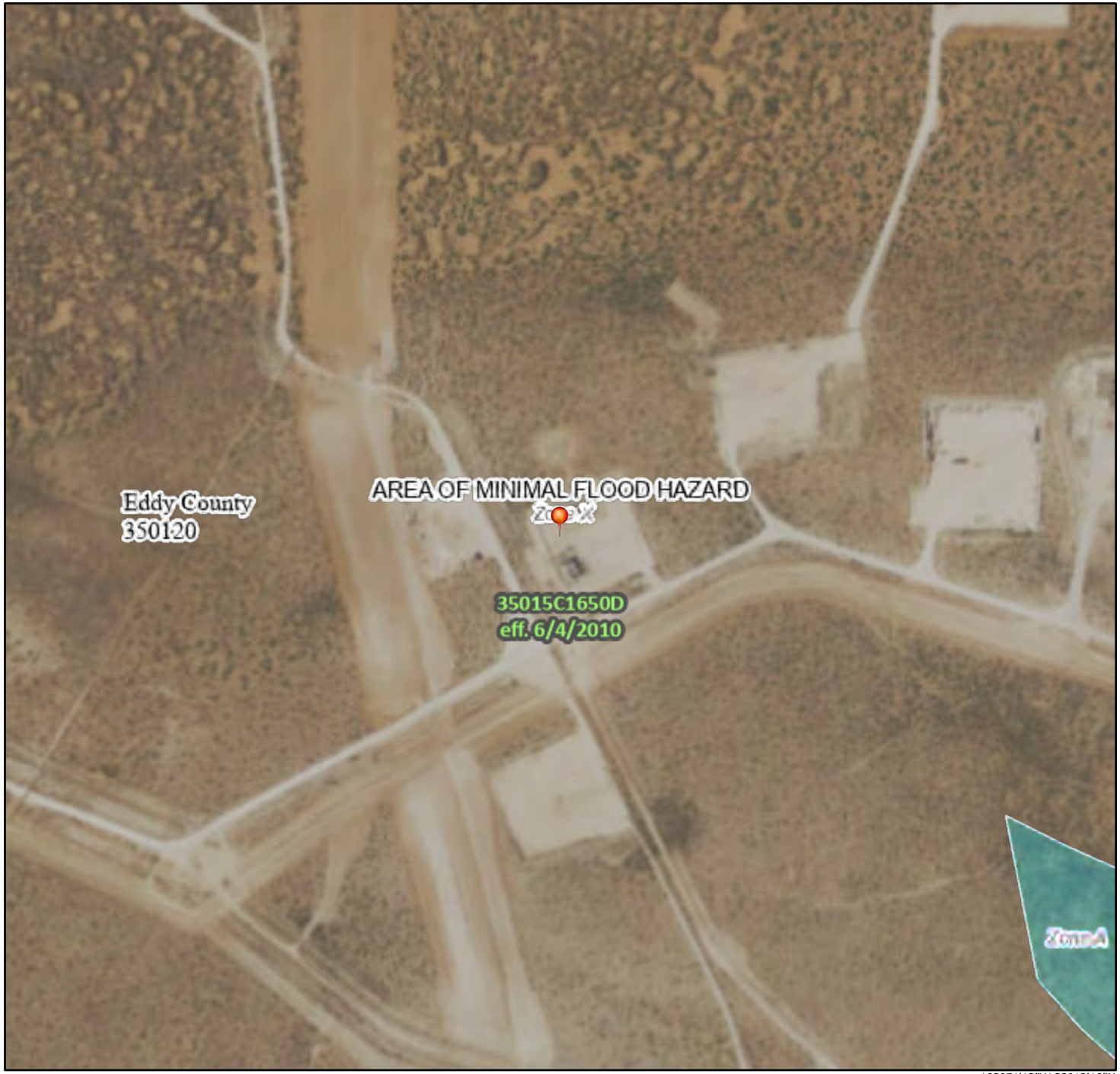
VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\XTO Energy\23E-06066 - PLU 342\Figure X Karst Potential (23E-06066)ID18120.mxd

National Flood Hazard Layer FIRMette

FEMA

103°51'50"W 32°12'40"N



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

1:6,000

103°51'13"W 32°12'10"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

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

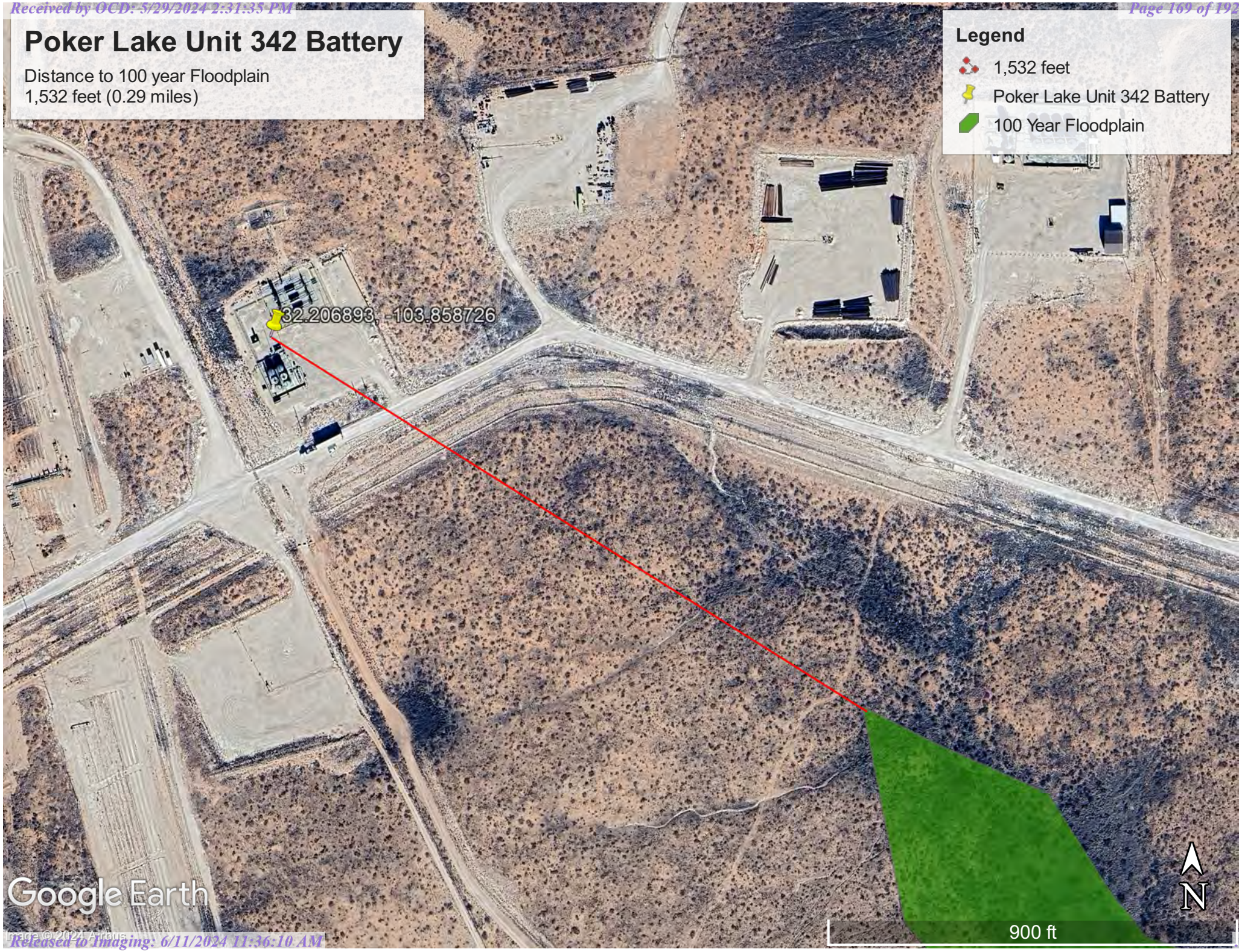
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/16/2024 at 5:50 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.

Poker Lake Unit 342 Battery

Distance to 100 year Floodplain
1,532 feet (0.29 miles)



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

January 16, 2024

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SM	Simona-Bippus complex, 0 to 5 percent slopes	3.0	100.0%
Totals for Area of Interest		**3.0**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Eddy Area, New Mexico

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

Map Unit Setting

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

Map Unit Composition

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

Description of Simona

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Bippus

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Simona

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

Bippus

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

USDA Natural Resources Conservation Service

Ecological site R070BD002NM
Shallow Sandy

Accessed: 01/16/2024

General information

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

Figure 1. Mapped extent

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

Associated sites

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

Similar sites

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

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

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

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

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

Characteristic soils are:
Simona
Jerag

Table 4. Representative soil features

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

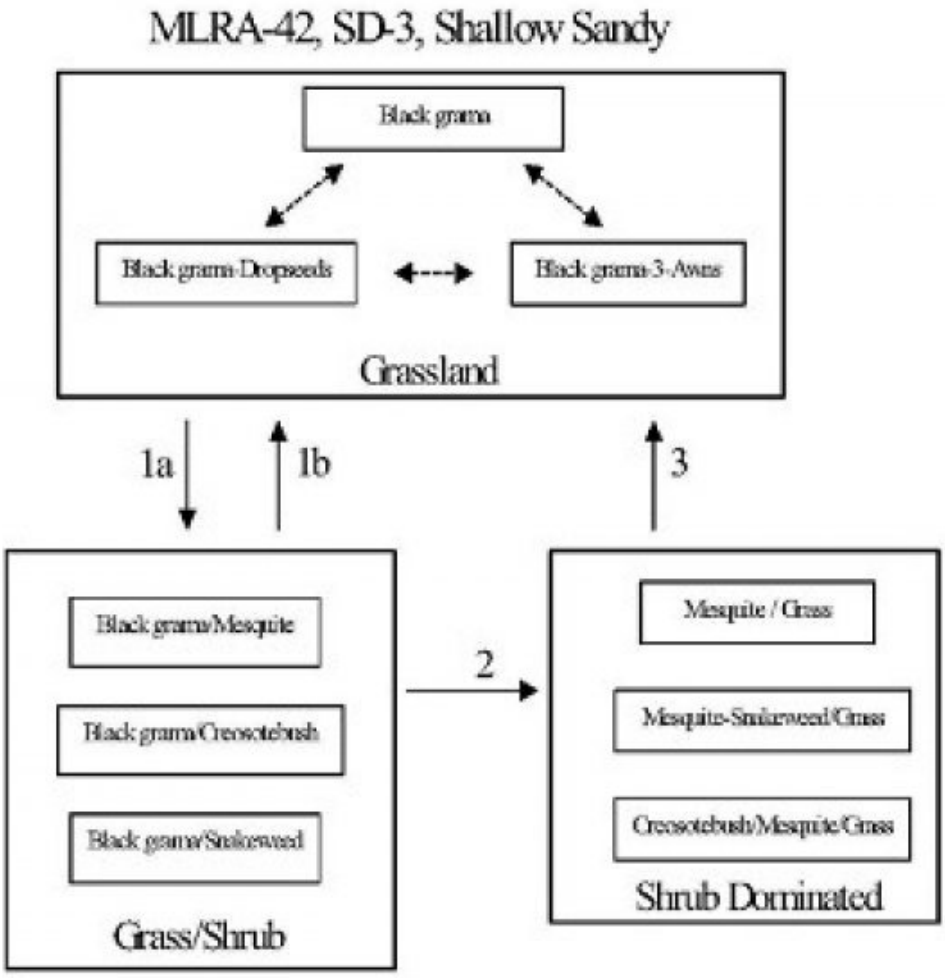
Soil depth	7–24 in
Surface fragment cover <=3"	5–25%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	5–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8
Subsurface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

Ecological dynamics

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

State and transition model

Plant Communities and Transitional Pathways (diagram)



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

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

3. Brush control, range seeding, prescribed grazing.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

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

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

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

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

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

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

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

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

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

Additional community tables

Table 7. Community 1.1 plant community composition

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

	blue grama	BOGR2	*Bouteloua gracilis*	41–83	–
4	**Warm Season**			25–41	
	sideoats grama	BOCU	*Bouteloua curtipendula*	25–41	–
5	**Warm Season**			41–83	
	spike dropseed	SPCO4	*Sporobolus contractus*	41–83	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	41–83	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	41–83	–
6	**Warm Season**			17–41	
	threeawn	ARIST	*Aristida*	17–41	–
7	**Warm Season**			41–83	
	Arizona cottontop	DICA8	*Digitaria californica*	41–83	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	41–83	–
8	**Warm Season**			41–83	
	mat sandbur	CELO3	*Cenchrus longispinus*	41–83	–
	hooded windmill grass	CHCU2	*Chloris cucullata*	41–83	–
9	**Other Perennial Grasses**			25–41	
	Grass, perennial	2GP	*Grass, perennial*	25–41	–
Shrub/Vine					
10	**Shrub**			8–25	
	javelina bush	COER5	*Condalia ericoides*	8–25	–
11	**Shrub**			8–25	
	yucca	YUCCA	*Yucca*	8–25	–
12	**Shrub**			8–25	
	jointfir	EPHED	*Ephedra*	8–25	–
	littleleaf ratany	KRER	*Krameria erecta*	8–25	–
13	**Shrub**			8–25	
	featherplume	DAFO	*Dalea formosa*	8–25	–
14	**Shrub**			8–25	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	8–25	–
15	**Other Shrubs**			25–41	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	25–41	–
Forb					
16	**Forb**			17–41	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	17–41	–
	Goodding's tansyaster	MAPIG2	*Machaeranthera pinnatifida ssp. gooddingii var. gooddingii*	17–41	–
17	**Forb**			17–41	
	woolly groundsel	PACA15	*Packera cana*	17–41	–
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	17–41	–
18	**Forb**			8–25	
	whitest evening primrose	OEAL	*Oenothera albicaulis*	8–25	–
19	**Other Forbs**			8–25	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	8–25	–

Animal community

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

Hydrological functions

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

Hydrologic Interpretations
Soil Series Hydrologic Group
Jarag D
Simona D

Recreational uses

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

Wood products

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

Other products

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

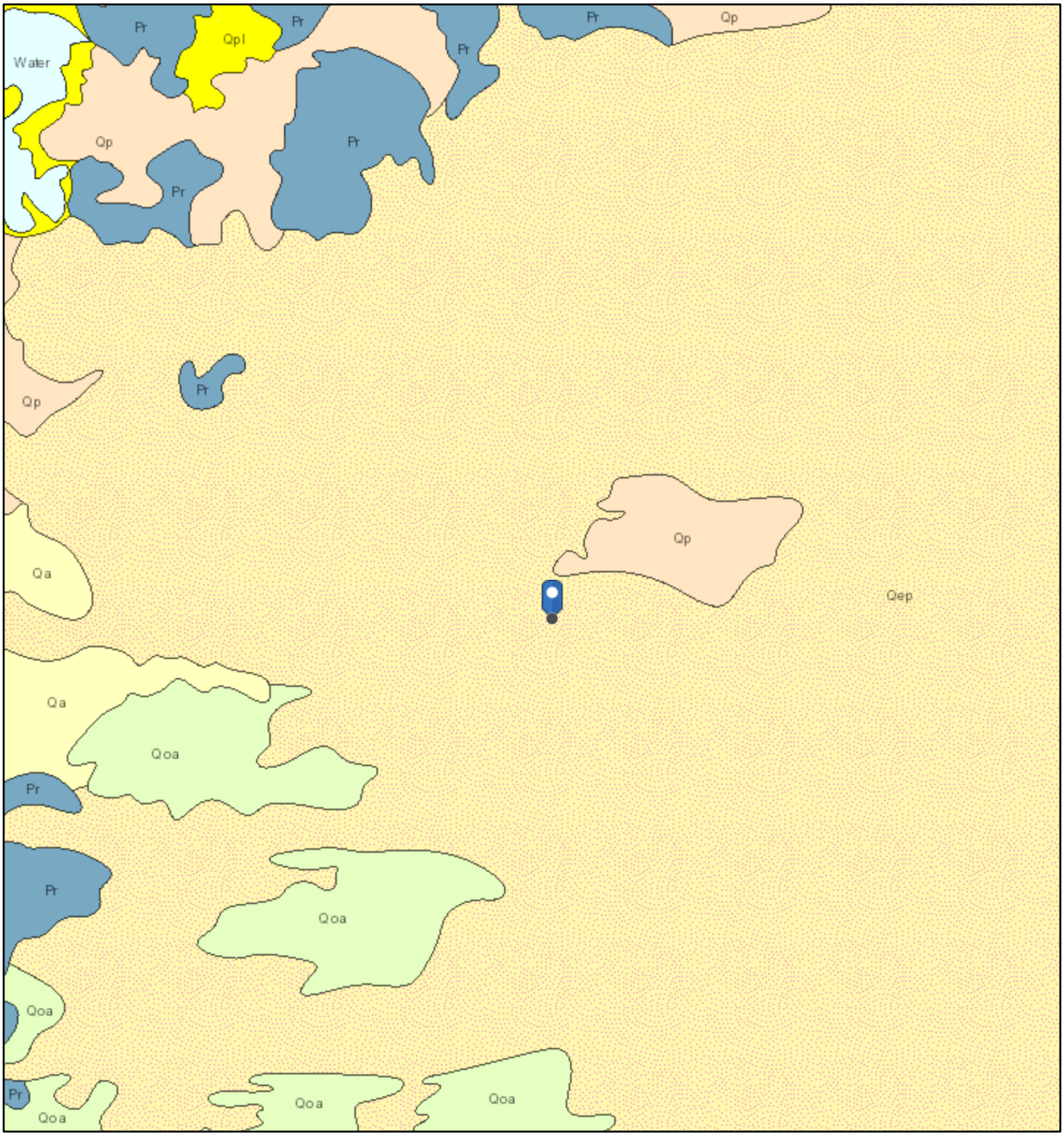
Other information

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

Inventory data references

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

PLU 342 - Geology



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1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

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

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

ArcGIS Web AppBuilder

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

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District IV
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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 348931

QUESTIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAPP2334849928**
Incident Name	**NAPP2334849928 POKER LAKE UNIT 342 BATTERY @ 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	Poker Lake Unit 342 Battery
Date Release Discovered	12/07/2023
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: Equipment Failure | Pump | Produced Water | Released: 15 BBL | Recovered: 15 BBL | Lost: 0 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	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: Melanie Collins Title: Regulatory Analyst Email: Melanie.Collins@exxonmobil.com Date: 12/14/2023

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 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	Greater than 5 (mi.)
Any other fresh water well or spring	Greater than 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between ½ and 1 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between 1 and 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
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)	5550
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	53
GRO+DRO (EPA SW-846 Method 8015M)	53
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	06/01/2024
On what date will (or did) the final sampling or liner inspection occur	08/31/2024
On what date will (or was) the remediation complete(d)	08/31/2024
What is the estimated surface area (in square feet) that will be reclaimed	2918
What is the estimated volume (in cubic yards) that will be reclaimed	85
What is the estimated surface area (in square feet) that will be remediated	2918
What is the estimated volume (in cubic yards) that will be remediated	85
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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District II
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Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
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Santa Fe, NM 87505

QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: Alan Romero Title: Regulatory Analyst Email: alan.romero1@exxonmobil.com Date: 05/29/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

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QUESTIONS (continued)

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

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

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

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CONDITIONS

Action 348931

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 348931
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	6/11/2024