District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAPP2102831345
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Kyle Littrell	Contact Telephone 432-221-7331
Contact email kyle.littrell@exxonmobil.com	Incident # *(assigned by OCD)*
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.56700 Longitude -103.77900
(NAD 83 in decimal degrees to 5 decimal places)

Site Name BEU 29W Vader 100H	Site Type Well Head
Date Release Discovered 1-14-21	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
M	16	20S	32E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☒ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Recycled water	30 bbls	30 bbls
Cause of Release	During frac operations, a Catalyst frac pump suction hose failed, causing a total of 30 bbls recycled water to spill into containment. A 48-hour advance liner inspection notice was given to NMOCD District 2. Liner was inspected and determined not to be operating as designed. A third-party contractor has been retained for remediation activities.	

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2102831345
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? A release greater than or equal to 25 barrels.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Yes, by Adrian Baker to Bratcher, Mike, EMNRD; Hamlet, Robert, EMNRD; Venegas, Victoria, EMNRD; emily.hernandez@state.nm.us; Mann, Ryan on Friday, January 15, 2021 5:15 PM via email.

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.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:
NA

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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.

Printed Name: Kyle Littrell
Title: Environmental Manager
Signature:
Date: 1-28-21
email: kyle.littrell@exxonmobil.com
Telephone: 432-221-7331

OCD Only

Received by: Ramona Marcus
Date: 5/3/2021

NAPP2102831345

Location:	**BEU 29 Vader 100H**	
Spill Date:	**1/14/2021**	
Area 1		
Approximate Area =	126.33	cu. ft.
VOLUME OF LEAK		
Total Recycled Water =	30.00	bbls

TOTAL VOLUME OF LEAK		
Total Recycled Water =	**30.00**	**bbls**
TOTAL VOLUME RECOVERED		
Total Recycled Water =	**30.00**	**bbls**

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 23672

CONDITIONS OF APPROVAL

Operator:	OGRID:	Action Number:	Action Type:
XTO ENERGY, INC 6401 Holiday Hill Road Building #5 Midland, TX79707	5380	23672	C-141

OCD Reviewer	Condition
rmarcus	None

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2102831345
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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?	50-100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☒ Field data
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☒ Boring or excavation logs
☒ Photographs including date and GIS information
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2102831345
District RP	
Facility ID	
Application ID	

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.

Printed Name: __Garrett Green_____ Title: _Environmental Coordinator_____

Signature:____  _____ Date: _1/3/2023_____

email: __Garrett.Green@exxonmobil.com_____ Telephone: ___575-200-0729_____

OCD Only

Received by: _____Jocelyn Harimon_____ Date: __01/04/2023____

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2102831345
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: ___Garrett Green_____ Title: _Environmental Coordinator _____

Signature: ___ _____ Date: _____1/3/2023_____

email: __Garrett.Green@exxonmobil.com_____ Telephone: ___575-200-0729_____

OCD Only

Received by: _____Jocelyn Harimon_____ Date: ___01/04/2023___

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: 01/30/2023

Printed Name: ___Jennifer Nobui_____ Title: __Environmental Specialist A_____

__

ENSOLUM

APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation

eurofins | Environment Testing America



ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3025-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/3/2022 7:58:50 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Laboratory Job ID: 890-3025-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance 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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

Job ID: 890-3025-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3025-1

Receipt
The sample was received on 9/21/2022 1:16 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice.

GC VOA
Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-35625 and analytical batch 880-35815 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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 880-35262 and analytical batch 880-35322 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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

Client Sample ID: PH02C

Date Collected: 09/20/22 12:15
Date Received: 09/21/22 13:16
Sample Depth: 8

Lab Sample ID: 890-3025-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U *-	0.00198		mg/Kg		09/28/22 16:17	10/02/22 04:06	1
Toluene	<0.00198	U	0.00198		mg/Kg		09/28/22 16:17	10/02/22 04:06	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		09/28/22 16:17	10/02/22 04:06	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		09/28/22 16:17	10/02/22 04:06	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		09/28/22 16:17	10/02/22 04:06	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		09/28/22 16:17	10/02/22 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*	*09/28/22 16:17*	*10/02/22 04:06*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*09/28/22 16:17*	*10/02/22 04:06*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396		mg/Kg			10/02/22 08:53	1

Method: 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			09/26/22 12:14	1

Method: 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		09/23/22 11:03	09/24/22 13:31	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/23/22 11:03	09/24/22 13:31	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/23/22 11:03	09/24/22 13:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*117*		*70 - 130*	*09/23/22 11:03*	*09/24/22 13:31*	*1*
o-Terphenyl	*108*		*70 - 130*	*09/23/22 11:03*	*09/24/22 13:31*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2190**		25.1		mg/Kg			09/26/22 09:16	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

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)
880-19417-A-1-E MS	Matrix Spike	109	105
880-19417-A-1-F MSD	Matrix Spike Duplicate	112	100
890-3025-1	PH02C	114	94
LCS 880-35625/1-A	Lab Control Sample	109	100
LCSD 880-35625/2-A	Lab Control Sample Dup	104	99
MB 880-35625/5-A	Method Blank	101	114
MB 880-35628/5-A	Method Blank	105	105

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)
890-3011-A-19-D MS	Matrix Spike	110	87
890-3011-A-19-E MSD	Matrix Spike Duplicate	112	89
890-3025-1	PH02C	117	108
LCS 880-35262/2-A	Lab Control Sample	107	96
LCSD 880-35262/3-A	Lab Control Sample Dup	109	93
MB 880-35262/1-A	Method Blank	132 S1+	124

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-35625/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*

Lab Sample ID: LCS 880-35625/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.06312	*-	mg/Kg		63	70 - 130		
Toluene			0.100	0.07231		mg/Kg		72	70 - 130		
Ethylbenzene			0.100	0.07030		mg/Kg		70	70 - 130		
m-Xylene & p-Xylene			0.200	0.1471		mg/Kg		74	70 - 130		
o-Xylene			0.100	0.07531		mg/Kg		75	70 - 130		

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

Lab Sample ID: LCSD 880-35625/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.06587	*-	mg/Kg		66	70 - 130	4	35
Toluene			0.100	0.07114		mg/Kg		71	70 - 130	2	35
Ethylbenzene			0.100	0.07179		mg/Kg		72	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1452		mg/Kg		73	70 - 130	1	35
o-Xylene			0.100	0.07431		mg/Kg		74	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U *-	0.101	0.09573		mg/Kg		95	70 - 130		
Toluene	<0.00201	U	0.101	0.09812		mg/Kg		98	70 - 130		

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

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

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.08958		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.201	0.1802		mg/Kg		90	70 - 130
o-Xylene	<0.00201	U	0.101	0.09000		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 880-19417-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *-	0.0990	0.09175		mg/Kg		93	70 - 130	4	35
Toluene	<0.00201	U	0.0990	0.1021		mg/Kg		103	70 - 130	4	35
Ethylbenzene	<0.00201	U	0.0990	0.1028		mg/Kg		104	70 - 130	14	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.2097		mg/Kg		106	70 - 130	15	35
o-Xylene	<0.00201	U	0.0990	0.1043		mg/Kg		105	70 - 130	15	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: MB 880-35628/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35628**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*

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

Lab Sample ID: MB 880-35262/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35322 — **Prep Batch: 35262**

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		09/23/22 11:03	09/24/22 10:38	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-35262/1-A
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 35262

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		09/23/22 11:03	09/24/22 10:38	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/23/22 11:03	09/24/22 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*132*	*S1+*	*70 - 130*	*09/23/22 11:03*	*09/24/22 10:38*	*1*
o-Terphenyl	*124*		*70 - 130*	*09/23/22 11:03*	*09/24/22 10:38*	*1*

Lab Sample ID: LCS 880-35262/2-A
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 35262

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	887.2		mg/Kg		89	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1002		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*107*		*70 - 130*
o-Terphenyl	*96*		*70 - 130*

Lab Sample ID: LCSD 880-35262/3-A
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 35262

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	921.2		mg/Kg		92	70 - 130	4	20
Diesel Range Organics (Over C10-C28)			1000	973.8		mg/Kg		97	70 - 130	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*109*		*70 - 130*
o-Terphenyl	*93*		*70 - 130*

Lab Sample ID: 890-3011-A-19-D MS
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 35262

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	861.2		mg/Kg		86	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	996	965.0		mg/Kg		92	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*110*		*70 - 130*
o-Terphenyl	*87*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

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

Lab Sample ID: 890-3011-A-19-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35322 — **Prep Batch: 35262**

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	<49.9	U	999	892.1		mg/Kg		89	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	971.0		mg/Kg		93	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*112*		*70 - 130*
o-Terphenyl	*89*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35024/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35313

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/23/22 19:42	1

Lab Sample ID: LCS 880-35024/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35313

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	246.5		mg/Kg		99	90 - 110		

Lab Sample ID: LCSD 880-35024/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35313

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	247.9		mg/Kg		99	90 - 110	1	20

Lab Sample ID: 890-3011-A-17-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35313

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	3220		1260	4518		mg/Kg		104	90 - 110		

Lab Sample ID: 890-3011-A-17-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35313

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	3220		1260	4521		mg/Kg		104	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

GC VOA

Prep Batch: 35625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Total/NA	Solid	5035	
MB 880-35625/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 35628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-35628/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 35815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Total/NA	Solid	8021B	35625
MB 880-35625/5-A	Method Blank	Total/NA	Solid	8021B	35625
MB 880-35628/5-A	Method Blank	Total/NA	Solid	8021B	35628
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	8021B	35625
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	35625
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	35625
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	35625

Analysis Batch: 35885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 35262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Total/NA	Solid	8015NM Prep	
MB 880-35262/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35262/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35262/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3011-A-19-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3011-A-19-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Total/NA	Solid	8015B NM	35262
MB 880-35262/1-A	Method Blank	Total/NA	Solid	8015B NM	35262
LCS 880-35262/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35262
LCSD 880-35262/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35262
890-3011-A-19-D MS	Matrix Spike	Total/NA	Solid	8015B NM	35262
890-3011-A-19-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35262

Analysis Batch: 35394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 35024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Soluble	Solid	DI Leach	
MB 880-35024/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35024/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35024/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3011-A-17-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3011-A-17-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3025-1	PH02C	Soluble	Solid	300.0	35024
MB 880-35024/1-A	Method Blank	Soluble	Solid	300.0	35024
LCS 880-35024/2-A	Lab Control Sample	Soluble	Solid	300.0	35024
LCSD 880-35024/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35024
890-3011-A-17-B MS	Matrix Spike	Soluble	Solid	300.0	35024
890-3011-A-17-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35024

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

Client Sample ID: PH02C

Date Collected: 09/20/22 12:15
Date Received: 09/21/22 13:16

Lab Sample ID: 890-3025-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	35625	09/28/22 16:17	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35815	10/02/22 04:06	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			35885	10/02/22 08:53	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35394	09/26/22 12:14	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	35262	09/23/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35322	09/24/22 13:31	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	35024	09/22/22 11:54	SMC	EET MID
Soluble	Analysis	300.0		5			35313	09/26/22 09:16	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3025-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3025-1	PH02C	Solid	09/20/22 12:15	09/21/22 13:16	8

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TMM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	4.2
Total Containers:		Corrected Temperature:	4.0

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH	Chlorides	BTEX
PH02C	S	9/20/22	1215	8'	G	1		X	X	X

→ MWR

890-3025 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 Comments

Incident #: NAPP2102831345

Cost Center: 1568221001

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 MeaRe		9-21-22 1315	4		
3			5		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3025-1
SDG Number: 03E1558005

Login Number: 3025
List Number: 1
Creator: Clifton, Cloe

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.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3025-1
SDG Number: 03E1558005

Login Number: 3025
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/22/22 11:12 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3024-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/3/2022 7:58:50 AM

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

LINKS
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Laboratory Job ID: 890-3024-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance 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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

Job ID: 890-3024-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3024-1

Receipt
The sample was received on 9/21/2022 1:16 PM. 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 4.0°C

GC VOA
Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-35625 and analytical batch 880-35815 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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 880-35262 and analytical batch 880-35322 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: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-35175 and 880-35175 and analytical batch 880-35309 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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

Client Sample ID: PH02D

Date Collected: 09/20/22 12:35
Date Received: 09/21/22 13:16
Sample Depth: 10

Lab Sample ID: 890-3024-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U *-	0.00201		mg/Kg		09/28/22 16:17	10/02/22 03:45	1
Toluene	<0.00201	U	0.00201		mg/Kg		09/28/22 16:17	10/02/22 03:45	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		09/28/22 16:17	10/02/22 03:45	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		09/28/22 16:17	10/02/22 03:45	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		09/28/22 16:17	10/02/22 03:45	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		09/28/22 16:17	10/02/22 03:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*	*09/28/22 16:17*	*10/02/22 03:45*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*09/28/22 16:17*	*10/02/22 03:45*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			10/02/22 08:53	1

Method: 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			09/26/22 12:14	1

Method: 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		09/23/22 11:03	09/24/22 13:09	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		09/23/22 11:03	09/24/22 13:09	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/23/22 11:03	09/24/22 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*09/23/22 11:03*	*09/24/22 13:09*	*1*
o-Terphenyl	*101*		*70 - 130*	*09/23/22 11:03*	*09/24/22 13:09*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2320**	**F1**	25.1		mg/Kg			09/24/22 22:48	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

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)
880-19417-A-1-E MS	Matrix Spike	109	105
880-19417-A-1-F MSD	Matrix Spike Duplicate	112	100
890-3024-1	PH02D	113	104
LCS 880-35625/1-A	Lab Control Sample	109	100
LCSD 880-35625/2-A	Lab Control Sample Dup	104	99
MB 880-35625/5-A	Method Blank	101	114
MB 880-35628/5-A	Method Blank	105	105

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)
890-3011-A-19-D MS	Matrix Spike	110	87
890-3011-A-19-E MSD	Matrix Spike Duplicate	112	89
890-3024-1	PH02D	102	101
LCS 880-35262/2-A	Lab Control Sample	107	96
LCSD 880-35262/3-A	Lab Control Sample Dup	109	93
MB 880-35262/1-A	Method Blank	132 S1+	124

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-35625/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*

Lab Sample ID: LCS 880-35625/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.06312	*-	mg/Kg		63	70 - 130		
Toluene			0.100	0.07231		mg/Kg		72	70 - 130		
Ethylbenzene			0.100	0.07030		mg/Kg		70	70 - 130		
m-Xylene & p-Xylene			0.200	0.1471		mg/Kg		74	70 - 130		
o-Xylene			0.100	0.07531		mg/Kg		75	70 - 130		

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

Lab Sample ID: LCSD 880-35625/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.06587	*-	mg/Kg		66	70 - 130	4	35
Toluene			0.100	0.07114		mg/Kg		71	70 - 130	2	35
Ethylbenzene			0.100	0.07179		mg/Kg		72	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1452		mg/Kg		73	70 - 130	1	35
o-Xylene			0.100	0.07431		mg/Kg		74	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U *-	0.101	0.09573		mg/Kg		95	70 - 130		
Toluene	<0.00201	U	0.101	0.09812		mg/Kg		98	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

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

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.08958		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.201	0.1802		mg/Kg		90	70 - 130
o-Xylene	<0.00201	U	0.101	0.09000		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 880-19417-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *-	0.0990	0.09175		mg/Kg		93	70 - 130	4	35
Toluene	<0.00201	U	0.0990	0.1021		mg/Kg		103	70 - 130	4	35
Ethylbenzene	<0.00201	U	0.0990	0.1028		mg/Kg		104	70 - 130	14	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.2097		mg/Kg		106	70 - 130	15	35
o-Xylene	<0.00201	U	0.0990	0.1043		mg/Kg		105	70 - 130	15	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: MB 880-35628/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35628**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*

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

Lab Sample ID: MB 880-35262/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35322 — **Prep Batch: 35262**

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		09/23/22 11:03	09/24/22 10:38	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-35262/1-A
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 35262

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		09/23/22 11:03	09/24/22 10:38	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/23/22 11:03	09/24/22 10:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*132*	*S1+*	*70 - 130*	*09/23/22 11:03*	*09/24/22 10:38*	*1*
o-Terphenyl	*124*		*70 - 130*	*09/23/22 11:03*	*09/24/22 10:38*	*1*

Lab Sample ID: LCS 880-35262/2-A
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 35262

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	887.2		mg/Kg		89	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1002		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*107*		*70 - 130*
o-Terphenyl	*96*		*70 - 130*

Lab Sample ID: LCSD 880-35262/3-A
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 35262

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	921.2		mg/Kg		92	70 - 130	4	20
Diesel Range Organics (Over C10-C28)			1000	973.8		mg/Kg		97	70 - 130	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*109*		*70 - 130*
o-Terphenyl	*93*		*70 - 130*

Lab Sample ID: 890-3011-A-19-D MS
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 35262

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	861.2		mg/Kg		86	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	996	965.0		mg/Kg		92	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*110*		*70 - 130*
o-Terphenyl	*87*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

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

Lab Sample ID: 890-3011-A-19-E MSD
Matrix: Solid
Analysis Batch: 35322

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 35262

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	<49.9	U	999	892.1		mg/Kg		89	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	971.0		mg/Kg		93	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*112*		*70 - 130*
o-Terphenyl	*89*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35175/1-A
Matrix: Solid
Analysis Batch: 35309

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			09/24/22 21:16	1

Lab Sample ID: LCS 880-35175/2-A
Matrix: Solid
Analysis Batch: 35309

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	273.5		mg/Kg		109	90 - 110		

Lab Sample ID: LCSD 880-35175/3-A
Matrix: Solid
Analysis Batch: 35309

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	266.4		mg/Kg		107	90 - 110	3	20

Lab Sample ID: 890-3024-1 MS
Matrix: Solid
Analysis Batch: 35309

Client Sample ID: PH02D
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	2320	F1	1260	3587		mg/Kg		101	90 - 110		

Lab Sample ID: 890-3024-1 MSD
Matrix: Solid
Analysis Batch: 35309

Client Sample ID: PH02D
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2320	F1	1260	3792	F1	mg/Kg		117	90 - 110	6	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

GC VOA

Prep Batch: 35625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Total/NA	Solid	5035	
MB 880-35625/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 35628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-35628/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 35815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Total/NA	Solid	8021B	35625
MB 880-35625/5-A	Method Blank	Total/NA	Solid	8021B	35625
MB 880-35628/5-A	Method Blank	Total/NA	Solid	8021B	35628
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	8021B	35625
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	35625
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	35625
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	35625

Analysis Batch: 35884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 35262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Total/NA	Solid	8015NM Prep	
MB 880-35262/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35262/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35262/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3011-A-19-D MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3011-A-19-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Total/NA	Solid	8015B NM	35262
MB 880-35262/1-A	Method Blank	Total/NA	Solid	8015B NM	35262
LCS 880-35262/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35262
LCSD 880-35262/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35262
890-3011-A-19-D MS	Matrix Spike	Total/NA	Solid	8015B NM	35262
890-3011-A-19-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35262

Analysis Batch: 35393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 35175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Soluble	Solid	DI Leach	
MB 880-35175/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35175/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35175/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3024-1 MS	PH02D	Soluble	Solid	DI Leach	
890-3024-1 MSD	PH02D	Soluble	Solid	DI Leach	

Analysis Batch: 35309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3024-1	PH02D	Soluble	Solid	300.0	35175
MB 880-35175/1-A	Method Blank	Soluble	Solid	300.0	35175
LCS 880-35175/2-A	Lab Control Sample	Soluble	Solid	300.0	35175
LCSD 880-35175/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35175
890-3024-1 MS	PH02D	Soluble	Solid	300.0	35175
890-3024-1 MSD	PH02D	Soluble	Solid	300.0	35175

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

Client Sample ID: PH02D

Date Collected: 09/20/22 12:35
Date Received: 09/21/22 13:16

Lab Sample ID: 890-3024-1

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			4.97 g	5 mL	35625	09/28/22 16:17	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35815	10/02/22 03:45	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			35884	10/02/22 08:53	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35393	09/26/22 12:14	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	35262	09/23/22 11:03	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35322	09/24/22 13:09	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	35175	09/22/22 12:03	SMC	EET MID
Soluble	Analysis	300.0		5			35309	09/24/22 22:48	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3024-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3024-1	PH02D	Solid	09/20/22 12:35	09/21/22 13:16	10

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503	Email:	kjennings

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	IR-M007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	4.2
Total Containers:		Corrected Temperature:	4.0

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH	BTEX	Chlorides
PH02D	S	9/20/22	1235	10'	G	1		X	X	X

Parameters

890-3024 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 Comments

Incident #: NAPP2102831345

Cost Center: 1568221001

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			9.21.22 1316			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3024-1
SDG Number: 03E1558005

Login Number: 3024
List Number: 1
Creator: Clifton, Cloe

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.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3024-1
SDG Number: 03E1558005

Login Number: 3024
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/22/22 11:12 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3160-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29 W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/13/2022 11:09:27 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Laboratory Job ID: 890-3160-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Job ID: 890-3160-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3160-1

Receipt
The sample was received on 10/5/2022 4:36 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: PH02F (890-3160-1).

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 method blank for preparation batch 880-36395 and analytical batch 880-36488 contained Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36395 and analytical batch 880-36488 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Client Sample ID: PH02F

Date Collected: 10/05/22 09:40
Date Received: 10/05/22 16:36
Sample Depth: 14

Lab Sample ID: 890-3160-1

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		10/11/22 16:29	10/12/22 19:08	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/22 16:29	10/12/22 19:08	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 16:29	10/12/22 19:08	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 16:29	10/12/22 19:08	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 16:29	10/12/22 19:08	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 16:29	10/12/22 19:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*	*10/11/22 16:29*	*10/12/22 19:08*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/11/22 16:29*	*10/12/22 19:08*	*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			10/13/22 11:47	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			10/11/22 09:32	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		10/07/22 15:16	10/10/22 14:06	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 15:16	10/10/22 14:06	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 15:16	10/10/22 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*97*		*70 - 130*	*10/07/22 15:16*	*10/10/22 14:06*	*1*
o-Terphenyl	*104*		*70 - 130*	*10/07/22 15:16*	*10/10/22 14:06*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1000**		4.99		mg/Kg			10/11/22 16:29	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

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)
880-20232-A-1-A MS	Matrix Spike	99	107
880-20232-A-1-B MSD	Matrix Spike Duplicate	77	109
890-3160-1	PH02F	102	104
LCS 880-36699/1-A	Lab Control Sample	100	97
LCSD 880-36699/2-A	Lab Control Sample Dup	103	104
MB 880-36699/5-A	Method Blank	90	112

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)
890-3155-A-1-C MS	Matrix Spike	82	78
890-3155-A-1-D MSD	Matrix Spike Duplicate	82	78
890-3160-1	PH02F	97	104
LCS 880-36395/2-A	Lab Control Sample	107	117
LCSD 880-36395/3-A	Lab Control Sample Dup	106	113
MB 880-36395/1-A	Method Blank	112	121

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36699/5-A
Matrix: Solid
Analysis Batch: 36717

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36699

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 16:29	10/12/22 11:29	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 16:29	10/12/22 11:29	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 16:29	10/12/22 11:29	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/22 16:29	10/12/22 11:29	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 16:29	10/12/22 11:29	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/22 16:29	10/12/22 11:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/11/22 16:29*	*10/12/22 11:29*	*1*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*	*10/11/22 16:29*	*10/12/22 11:29*	*1*

Lab Sample ID: LCS 880-36699/1-A
Matrix: Solid
Analysis Batch: 36717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36699

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.08151		mg/Kg		82	70 - 130		
Toluene			0.100	0.08917		mg/Kg		89	70 - 130		
Ethylbenzene			0.100	0.07884		mg/Kg		79	70 - 130		
m-Xylene & p-Xylene			0.200	0.1575		mg/Kg		79	70 - 130		
o-Xylene			0.100	0.07833		mg/Kg		78	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: LCSD 880-36699/2-A
Matrix: Solid
Analysis Batch: 36717

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36699

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09035		mg/Kg		90	70 - 130	10	35
Toluene			0.100	0.09725		mg/Kg		97	70 - 130	9	35
Ethylbenzene			0.100	0.08683		mg/Kg		87	70 - 130	10	35
m-Xylene & p-Xylene			0.200	0.1722		mg/Kg		86	70 - 130	9	35
o-Xylene			0.100	0.08568		mg/Kg		86	70 - 130	9	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 880-20232-A-1-A MS
Matrix: Solid
Analysis Batch: 36717

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36699

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.100	0.09214		mg/Kg		92	70 - 130		
Toluene	<0.00201	U F1	0.100	0.09307		mg/Kg		93	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

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

Lab Sample ID: 880-20232-A-1-A MS
Matrix: Solid
Analysis Batch: 36717

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36699

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U F1 F2	0.100	0.07772		mg/Kg		77	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.201	0.1563		mg/Kg		78	70 - 130
o-Xylene	<0.00201	U F1 F2	0.100	0.07596		mg/Kg		75	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-20232-A-1-B MSD
Matrix: Solid
Analysis Batch: 36717

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36699

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0998	0.07929		mg/Kg		79	70 - 130	15	35
Toluene	<0.00201	U F1	0.0998	0.06564	F1	mg/Kg		66	70 - 130	35	35
Ethylbenzene	<0.00201	U F1 F2	0.0998	0.05281	F1 F2	mg/Kg		53	70 - 130	38	35
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.200	0.09464	F1 F2	mg/Kg		47	70 - 130	49	35
o-Xylene	<0.00201	U F1 F2	0.0998	0.04674	F1 F2	mg/Kg		46	70 - 130	48	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*77*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

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

Lab Sample ID: MB 880-36395/1-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36395

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		10/07/22 15:16	10/10/22 10:59	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 15:16	10/10/22 10:59	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 15:16	10/10/22 10:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*112*		*70 - 130*	*10/07/22 15:16*	*10/10/22 10:59*	*1*
o-Terphenyl	*121*		*70 - 130*	*10/07/22 15:16*	*10/10/22 10:59*	*1*

Lab Sample ID: LCS 880-36395/2-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36395

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	996.9		mg/Kg		100	70 - 130
Diesel Range Organics (Over C10-C28)			1000	946.9		mg/Kg		95	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-36395/2-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36395

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*107*		*70 - 130*
o-Terphenyl	*117*		*70 - 130*

Lab Sample ID: LCSD 880-36395/3-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36395

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1023		mg/Kg		102	70 - 130	3	20
Diesel Range Organics (Over C10-C28)			1000	992.6		mg/Kg		99	70 - 130	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*106*		*70 - 130*
o-Terphenyl	*113*		*70 - 130*

Lab Sample ID: 890-3155-A-1-C MS
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	983.4		mg/Kg		96	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U F1	998	671.0	F1	mg/Kg		66	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*82*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

Lab Sample ID: 890-3155-A-1-D MSD
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36395

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	<50.0	U	999	1010		mg/Kg		99	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U F1	999	687.0	F1	mg/Kg		67	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*82*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36393/1-A
Matrix: Solid
Analysis Batch: 36632

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			10/11/22 14:27	1

Lab Sample ID: LCS 880-36393/2-A
Matrix: Solid
Analysis Batch: 36632

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	257.3		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-36393/3-A
Matrix: Solid
Analysis Batch: 36632

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	246.5		mg/Kg		99	90 - 110	4	20

Lab Sample ID: 890-3157-A-1-C MS
Matrix: Solid
Analysis Batch: 36632

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		251	391.7		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3157-A-1-D MSD
Matrix: Solid
Analysis Batch: 36632

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		251	418.0		mg/Kg		106	90 - 110	6	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

GC VOA

Prep Batch: 36699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Total/NA	Solid	5035	
MB 880-36699/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36699/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36699/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20232-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-20232-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Total/NA	Solid	8021B	36699
MB 880-36699/5-A	Method Blank	Total/NA	Solid	8021B	36699
LCS 880-36699/1-A	Lab Control Sample	Total/NA	Solid	8021B	36699
LCSD 880-36699/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36699
880-20232-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	36699
880-20232-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36699

Analysis Batch: 36875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 36395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Total/NA	Solid	8015NM Prep	
MB 880-36395/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36395/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36395/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3155-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3155-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Total/NA	Solid	8015B NM	36395
MB 880-36395/1-A	Method Blank	Total/NA	Solid	8015B NM	36395
LCS 880-36395/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36395
LCSD 880-36395/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36395
890-3155-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	36395
890-3155-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36395

Analysis Batch: 36650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 36393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Soluble	Solid	DI Leach	
MB 880-36393/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

HPLC/IC (Continued)

Leach Batch: 36393 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3157-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3157-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3160-1	PH02F	Soluble	Solid	300.0	36393
MB 880-36393/1-A	Method Blank	Soluble	Solid	300.0	36393
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	300.0	36393
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36393
890-3157-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	36393
890-3157-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36393

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Client Sample ID: PH02F

Date Collected: 10/05/22 09:40
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3160-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	36699	10/11/22 16:29	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36717	10/12/22 19:08	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			36875	10/13/22 11:47	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36650	10/11/22 09:32	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36395	10/07/22 15:16	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36488	10/10/22 14:06	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		1			36632	10/11/22 16:29	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3160-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3160-1	PH02F	Solid	10/05/22 09:40	10/05/22 16:36	14

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10/13/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensaum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503	Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:	IWM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2
Total Containers:		Corrected Temperature:	3.0

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides	TPH	BTEX
PH02F	S	10/5/22	0940	14'	G	1		X	X	X

890-3160 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 Comments

Incident #: NAPP2102831345
~~Incident~~
Cost Center: 1568224001

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			2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3160-1
SDG Number: 03E1558005

Login Number: 3160
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

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

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3160-1
SDG Number: 03E1558005

Login Number: 3160
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/07/22 11:00 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3161-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29 W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
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Authorized for release by:
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Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Laboratory Job ID: 890-3161-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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
F1	MS and/or MSD recovery exceeds control limits.
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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

Job ID: 890-3161-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3161-1

Receipt
The sample was received on 10/5/2022 4:36 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: PH02G (890-3161-1).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36609 and analytical batch 880-36928 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: PH02G (890-3161-1). Evidence of matrix interferences is not obvious.

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 method blank for preparation batch 880-36395 and analytical batch 880-36488 contained Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36395 and analytical batch 880-36488 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

Client Sample ID: PH02G

Date Collected: 10/05/22 10:00
Date Received: 10/05/22 16:36
Sample Depth: 16

Lab Sample ID: 890-3161-1

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		10/11/22 13:53	10/15/22 14:28	1
Toluene	**0.00269**		0.00200		mg/Kg		10/11/22 13:53	10/15/22 14:28	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:53	10/15/22 14:28	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/11/22 13:53	10/15/22 14:28	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:53	10/15/22 14:28	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/11/22 13:53	10/15/22 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*44*	*S1-*	*70 - 130*	*10/11/22 13:53*	*10/15/22 14:28*	*1*
1,4-Difluorobenzene (Surr)	*75*		*70 - 130*	*10/11/22 13:53*	*10/15/22 14:28*	*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			10/17/22 11:16	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			10/11/22 09:32	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		10/07/22 15:16	10/10/22 14:27	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/07/22 15:16	10/10/22 14:27	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/07/22 15:16	10/10/22 14:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*10/07/22 15:16*	*10/10/22 14:27*	*1*
o-Terphenyl	*108*		*70 - 130*	*10/07/22 15:16*	*10/10/22 14:27*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**564**		5.01		mg/Kg			10/11/22 16:47	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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)
890-3150-A-23-C MS	Matrix Spike	120	90
890-3150-A-23-D MSD	Matrix Spike Duplicate	98	87
890-3161-1	PH02G	44 S1-	75
LCS 880-36609/1-A	Lab Control Sample	89	84
LCSD 880-36609/2-A	Lab Control Sample Dup	96	93
MB 880-36609/5-A	Method Blank	100	80
MB 880-36684/5-A	Method Blank	103	84

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-3155-A-1-C MS	Matrix Spike	82	78
890-3155-A-1-D MSD	Matrix Spike Duplicate	82	78
890-3161-1	PH02G	102	108
LCS 880-36395/2-A	Lab Control Sample	107	117
LCSD 880-36395/3-A	Lab Control Sample Dup	106	113
MB 880-36395/1-A	Method Blank	112	121

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36609/5-A
Matrix: Solid
Analysis Batch: 36928

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36609

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/22 16:53	10/15/22 08:53	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/22 16:53	10/15/22 08:53	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/22 16:53	10/15/22 08:53	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/22 16:53	10/15/22 08:53	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/22 16:53	10/15/22 08:53	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/22 16:53	10/15/22 08:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*	*10/10/22 16:53*	*10/15/22 08:53*	*1*
1,4-Difluorobenzene (Surr)	*80*		*70 - 130*	*10/10/22 16:53*	*10/15/22 08:53*	*1*

Lab Sample ID: LCS 880-36609/1-A
Matrix: Solid
Analysis Batch: 36928

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36609

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09563		mg/Kg		96	70 - 130		
Toluene			0.100	0.09823		mg/Kg		98	70 - 130		
Ethylbenzene			0.100	0.09267		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1924		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09704		mg/Kg		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*

Lab Sample ID: LCSD 880-36609/2-A
Matrix: Solid
Analysis Batch: 36928

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36609

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09888		mg/Kg		99	70 - 130	3	35
Toluene			0.100	0.1027		mg/Kg		103	70 - 130	4	35
Ethylbenzene			0.100	0.09791		mg/Kg		98	70 - 130	6	35
m-Xylene & p-Xylene			0.200	0.2013		mg/Kg		101	70 - 130	4	35
o-Xylene			0.100	0.1024		mg/Kg		102	70 - 130	5	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: 890-3150-A-23-C MS
Matrix: Solid
Analysis Batch: 36928

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36609

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U F1 F2	0.100	0.04224	F1	mg/Kg		42	70 - 130		
Toluene	<0.00200	U F1 F2	0.100	0.05595	F1	mg/Kg		56	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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

Lab Sample ID: 890-3150-A-23-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36928 — **Prep Batch: 36609**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U F1	0.100	0.06608	F1	mg/Kg		66	70 - 130
m-Xylene & p-Xylene	<0.00399	U F1	0.200	0.1334	F1	mg/Kg		67	70 - 130
o-Xylene	<0.00200	U	0.100	0.07676		mg/Kg		77	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

Lab Sample ID: 890-3150-A-23-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36928 — **Prep Batch: 36609**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U F1 F2	0.0990	0.08809	F2	mg/Kg		89	70 - 130	70	35
Toluene	<0.00200	U F1 F2	0.0990	0.09250	F2	mg/Kg		93	70 - 130	49	35
Ethylbenzene	<0.00200	U F1	0.0990	0.08628		mg/Kg		87	70 - 130	27	35
m-Xylene & p-Xylene	<0.00399	U F1	0.198	0.1727		mg/Kg		87	70 - 130	26	35
o-Xylene	<0.00200	U	0.0990	0.09104		mg/Kg		92	70 - 130	17	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*

Lab Sample ID: MB 880-36684/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36928 — **Prep Batch: 36684**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/11/22 14:22	10/14/22 22:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/11/22 14:22	10/14/22 22:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/11/22 14:22	10/14/22 22:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/11/22 14:22	10/14/22 22:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/11/22 14:22	10/14/22 22:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/11/22 14:22	10/14/22 22:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*	*10/11/22 14:22*	*10/14/22 22:12*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*	*10/11/22 14:22*	*10/14/22 22:12*	*1*

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

Lab Sample ID: MB 880-36395/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36488 — **Prep Batch: 36395**

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		10/07/22 15:16	10/10/22 10:59	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-36395/1-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36395

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		10/07/22 15:16	10/10/22 10:59	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 15:16	10/10/22 10:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*112*		*70 - 130*	*10/07/22 15:16*	*10/10/22 10:59*	*1*
o-Terphenyl	*121*		*70 - 130*	*10/07/22 15:16*	*10/10/22 10:59*	*1*

Lab Sample ID: LCS 880-36395/2-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36395

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	996.9		mg/Kg		100	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	946.9		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*107*		*70 - 130*
o-Terphenyl	*117*		*70 - 130*

Lab Sample ID: LCSD 880-36395/3-A
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36395

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1023		mg/Kg		102	70 - 130	3	20
Diesel Range Organics (Over C10-C28)			1000	992.6		mg/Kg		99	70 - 130	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*106*		*70 - 130*
o-Terphenyl	*113*		*70 - 130*

Lab Sample ID: 890-3155-A-1-C MS
Matrix: Solid
Analysis Batch: 36488

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36395

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	983.4		mg/Kg		96	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U F1	998	671.0	F1	mg/Kg		66	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*82*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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

Lab Sample ID: 890-3155-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36488 — **Prep Batch: 36395**

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	<50.0	U	999	1010		mg/Kg		99	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U F1	999	687.0	F1	mg/Kg		67	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*82*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36393/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/22 14:27	1

Lab Sample ID: LCS 880-36393/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	257.3		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-36393/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	246.5		mg/Kg		99	90 - 110	4	20

Lab Sample ID: 890-3157-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	152		251	391.7		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3157-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	152		251	418.0		mg/Kg		106	90 - 110	6	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

GC VOA

Prep Batch: 36609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Total/NA	Solid	5035	
MB 880-36609/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36609/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36609/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3150-A-23-C MS	Matrix Spike	Total/NA	Solid	5035	
890-3150-A-23-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 36684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36684/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Total/NA	Solid	8021B	36609
MB 880-36609/5-A	Method Blank	Total/NA	Solid	8021B	36609
MB 880-36684/5-A	Method Blank	Total/NA	Solid	8021B	36684
LCS 880-36609/1-A	Lab Control Sample	Total/NA	Solid	8021B	36609
LCSD 880-36609/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36609
890-3150-A-23-C MS	Matrix Spike	Total/NA	Solid	8021B	36609
890-3150-A-23-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36609

Analysis Batch: 37137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 36395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Total/NA	Solid	8015NM Prep	
MB 880-36395/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36395/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36395/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3155-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3155-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Total/NA	Solid	8015B NM	36395
MB 880-36395/1-A	Method Blank	Total/NA	Solid	8015B NM	36395
LCS 880-36395/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36395
LCSD 880-36395/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36395
890-3155-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	36395
890-3155-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36395

Analysis Batch: 36651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Soluble	Solid	DI Leach	
MB 880-36393/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3157-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3157-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3161-1	PH02G	Soluble	Solid	300.0	36393
MB 880-36393/1-A	Method Blank	Soluble	Solid	300.0	36393
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	300.0	36393
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36393
890-3157-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	36393
890-3157-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36393

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

Client Sample ID: PH02G

Date Collected: 10/05/22 10:00
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3161-1

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	36609	10/11/22 13:53	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36928	10/15/22 14:28	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37137	10/17/22 11:16	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36651	10/11/22 09:32	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36395	10/07/22 15:16	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36488	10/10/22 14:27	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		1			36632	10/11/22 16:47	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3161-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3161-1	PH02G	Solid	10/05/22 10:00	10/05/22 16:36	16

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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: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E. Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BELL 2W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:	IWM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2
Total Containers:		Corrected Temperature:	3.0

ANALYSIS REQUEST

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	Pres. Code	Parameters: Chlorides	TPH	BTEX	Sample Comments
PH02G	S	10/5/22	1000	16'	G	1		X	X	X	Incident #: NAPP2102831345
											Cost Center: 156822100

890-3161 Chain of Custody

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		10.5.22 1436	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM

10/17/2022

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3161-1
SDG Number: 03E1558005

Login Number: 3161
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3161-1
SDG Number: 03E1558005

Login Number: 3161
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/07/22 11:00 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3023-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/3/2022 7:53:09 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Laboratory Job ID: 890-3023-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance 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, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

Job ID: 890-3023-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3023-1

Receipt
The sample was received on 9/21/2022 1:16 PM. 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 4.0°C

GC VOA
Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-35625 and analytical batch 880-35815 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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 880-35173 and analytical batch 880-35220 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (890-3016-A-1-C MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-35175 and 880-35175 and analytical batch 880-35309 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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

Client Sample ID: PH04C

Date Collected: 09/20/22 13:10
Date Received: 09/21/22 13:16
Sample Depth: 8

Lab Sample ID: 890-3023-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *-	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:25	1
Toluene	<0.00199	U	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:25	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:25	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		09/28/22 16:17	10/02/22 03:25	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:25	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		09/28/22 16:17	10/02/22 03:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*	*09/28/22 16:17*	*10/02/22 03:25*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*09/28/22 16:17*	*10/02/22 03:25*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/02/22 08:53	1

Method: 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			09/26/22 13:20	1

Method: 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		09/22/22 11:35	09/23/22 19:53	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/22/22 11:35	09/23/22 19:53	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/22/22 11:35	09/23/22 19:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*09/22/22 11:35*	*09/23/22 19:53*	*1*
o-Terphenyl	*107*		*70 - 130*	*09/22/22 11:35*	*09/23/22 19:53*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1720**		25.2		mg/Kg			09/24/22 22:42	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

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)
880-19417-A-1-E MS	Matrix Spike	109	105
880-19417-A-1-F MSD	Matrix Spike Duplicate	112	100
890-3023-1	PH04C	111	92
LCS 880-35625/1-A	Lab Control Sample	109	100
LCSD 880-35625/2-A	Lab Control Sample Dup	104	99
MB 880-35625/5-A	Method Blank	101	114
MB 880-35628/5-A	Method Blank	105	105

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)
890-3016-A-1-B MS	Matrix Spike	81	73
890-3016-A-1-C MSD	Matrix Spike Duplicate	76	67 S1-
890-3023-1	PH04C	100	107
LCS 880-35173/2-A	Lab Control Sample	114	118
LCSD 880-35173/3-A	Lab Control Sample Dup	103	109
MB 880-35173/1-A	Method Blank	132 S1+	148 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-35625/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*

Lab Sample ID: LCS 880-35625/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.06312	*-	mg/Kg		63	70 - 130		
Toluene			0.100	0.07231		mg/Kg		72	70 - 130		
Ethylbenzene			0.100	0.07030		mg/Kg		70	70 - 130		
m-Xylene & p-Xylene			0.200	0.1471		mg/Kg		74	70 - 130		
o-Xylene			0.100	0.07531		mg/Kg		75	70 - 130		

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

Lab Sample ID: LCSD 880-35625/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.06587	*-	mg/Kg		66	70 - 130	4	35
Toluene			0.100	0.07114		mg/Kg		71	70 - 130	2	35
Ethylbenzene			0.100	0.07179		mg/Kg		72	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1452		mg/Kg		73	70 - 130	1	35
o-Xylene			0.100	0.07431		mg/Kg		74	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U *-	0.101	0.09573		mg/Kg		95	70 - 130		
Toluene	<0.00201	U	0.101	0.09812		mg/Kg		98	70 - 130		

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

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

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.08958		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.201	0.1802		mg/Kg		90	70 - 130
o-Xylene	<0.00201	U	0.101	0.09000		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 880-19417-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *-	0.0990	0.09175		mg/Kg		93	70 - 130	4	35
Toluene	<0.00201	U	0.0990	0.1021		mg/Kg		103	70 - 130	4	35
Ethylbenzene	<0.00201	U	0.0990	0.1028		mg/Kg		104	70 - 130	14	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.2097		mg/Kg		106	70 - 130	15	35
o-Xylene	<0.00201	U	0.0990	0.1043		mg/Kg		105	70 - 130	15	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: MB 880-35628/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35628**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*

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

Lab Sample ID: MB 880-35173/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35220 — **Prep Batch: 35173**

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		09/22/22 11:35	09/23/22 10:55	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-35173/1-A
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 35173

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		09/22/22 11:35	09/23/22 10:55	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/22/22 11:35	09/23/22 10:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*132*	*S1+*	*70 - 130*	*09/22/22 11:35*	*09/23/22 10:55*	*1*
o-Terphenyl	*148*	*S1+*	*70 - 130*	*09/22/22 11:35*	*09/23/22 10:55*	*1*

Lab Sample ID: LCS 880-35173/2-A
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 35173

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1137		mg/Kg		114	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*114*		*70 - 130*
o-Terphenyl	*118*		*70 - 130*

Lab Sample ID: LCSD 880-35173/3-A
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 35173

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	956.1		mg/Kg		96	70 - 130	17	20
Diesel Range Organics (Over C10-C28)			1000	922.2		mg/Kg		92	70 - 130	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*109*		*70 - 130*

Lab Sample ID: 890-3016-A-1-B MS
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 35173

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	1077		mg/Kg		106	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	996	896.9		mg/Kg		90	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*81*		*70 - 130*
o-Terphenyl	*73*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

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

Lab Sample ID: 890-3016-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35220 — **Prep Batch: 35173**

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	<49.9	U	999	959.8		mg/Kg		94	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	839.3		mg/Kg		84	70 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*76*		*70 - 130*
o-Terphenyl	*67*	*S1-*	*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35175/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/24/22 21:16	1

Lab Sample ID: LCS 880-35175/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	273.5		mg/Kg		109	90 - 110		

Lab Sample ID: LCSD 880-35175/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	266.4		mg/Kg		107	90 - 110	3	20

Lab Sample ID: 890-3015-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1470	F1	1250	2790		mg/Kg		106	90 - 110		

Lab Sample ID: 890-3015-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1470	F1	1250	2906	F1	mg/Kg		115	90 - 110	4	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

GC VOA

Prep Batch: 35625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Total/NA	Solid	5035	
MB 880-35625/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 35628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-35628/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 35815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Total/NA	Solid	8021B	35625
MB 880-35625/5-A	Method Blank	Total/NA	Solid	8021B	35625
MB 880-35628/5-A	Method Blank	Total/NA	Solid	8021B	35628
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	8021B	35625
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	35625
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	35625
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	35625

Analysis Batch: 35883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 35173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Total/NA	Solid	8015NM Prep	
MB 880-35173/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35173/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35173/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3016-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3016-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Total/NA	Solid	8015B NM	35173
MB 880-35173/1-A	Method Blank	Total/NA	Solid	8015B NM	35173
LCS 880-35173/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35173
LCSD 880-35173/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35173
890-3016-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	35173
890-3016-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35173

Analysis Batch: 35411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 35175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Soluble	Solid	DI Leach	
MB 880-35175/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35175/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35175/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3015-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3015-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3023-1	PH04C	Soluble	Solid	300.0	35175
MB 880-35175/1-A	Method Blank	Soluble	Solid	300.0	35175
LCS 880-35175/2-A	Lab Control Sample	Soluble	Solid	300.0	35175
LCSD 880-35175/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35175
890-3015-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35175
890-3015-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35175

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

Client Sample ID: PH04C

Date Collected: 09/20/22 13:10
Date Received: 09/21/22 13:16

Lab Sample ID: 890-3023-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	35625	09/28/22 16:17	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35815	10/02/22 03:25	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			35883	10/02/22 08:53	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35411	09/26/22 13:20	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	35173	09/22/22 11:35	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35220	09/23/22 19:53	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	35175	09/22/22 12:03	SMC	EET MID
Soluble	Analysis	300.0		5			35309	09/24/22 22:42	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3023-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3023-1	PH04C	Solid	09/20/22 13:10	09/21/22 13:16	8

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E. Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503 Email:	kjennings@ensolum.com	

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:	BEU 29W Valor 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, 103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	Tm 907
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	4.2
Total Containers:		Corrected Temperature:	4.0

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: TPH	BTEX	Chlorides
PH04C	S	9/20/22	1310	8'	G	1		X	X	X

890-3023 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 Comments

Incident #: NAPP2102831345

Cost Center: 1568222001

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		9.21.22 1311	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3023-1
SDG Number: 03E1558005

Login Number: 3023
List Number: 1
Creator: Clifton, Cloe

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.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3023-1
SDG Number: 03E1558005

Login Number: 3023
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/22/22 11:12 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3022-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/3/2022 7:53:09 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Laboratory Job ID: 890-3022-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance 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, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

Job ID: 890-3022-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3022-1

Receipt
The sample was received on 9/21/2022 1:16 PM. 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 4.0°C

GC VOA
Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-35625 and analytical batch 880-35815 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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 880-35173 and analytical batch 880-35220 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (890-3016-A-1-C MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-35175 and 880-35175 and analytical batch 880-35309 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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

Client Sample ID: PH04D

Date Collected: 09/20/22 13:30
Date Received: 09/21/22 13:16
Sample Depth: 10

Lab Sample ID: 890-3022-1

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *-	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:04	1
Toluene	<0.00199	U	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:04	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:04	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		09/28/22 16:17	10/02/22 03:04	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		09/28/22 16:17	10/02/22 03:04	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		09/28/22 16:17	10/02/22 03:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*	*09/28/22 16:17*	*10/02/22 03:04*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*09/28/22 16:17*	*10/02/22 03:04*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/02/22 08:53	1

Method: 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			09/26/22 13:20	1

Method: 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		09/22/22 11:35	09/23/22 19:31	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		09/22/22 11:35	09/23/22 19:31	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/22/22 11:35	09/23/22 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*95*		*70 - 130*	*09/22/22 11:35*	*09/23/22 19:31*	*1*
o-Terphenyl	*101*		*70 - 130*	*09/22/22 11:35*	*09/23/22 19:31*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1650**		49.5		mg/Kg			09/24/22 22:37	10

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

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)
880-19417-A-1-E MS	Matrix Spike	109	105
880-19417-A-1-F MSD	Matrix Spike Duplicate	112	100
890-3022-1	PH04D	113	104
LCS 880-35625/1-A	Lab Control Sample	109	100
LCSD 880-35625/2-A	Lab Control Sample Dup	104	99
MB 880-35625/5-A	Method Blank	101	114
MB 880-35628/5-A	Method Blank	105	105

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)
890-3016-A-1-B MS	Matrix Spike	81	73
890-3016-A-1-C MSD	Matrix Spike Duplicate	76	67 S1-
890-3022-1	PH04D	95	101
LCS 880-35173/2-A	Lab Control Sample	114	118
LCSD 880-35173/3-A	Lab Control Sample Dup	103	109
MB 880-35173/1-A	Method Blank	132 S1+	148 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-35625/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/28/22 16:17	10/01/22 20:00	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/28/22 16:17	10/01/22 20:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*
1,4-Difluorobenzene (Surr)	*114*		*70 - 130*	*09/28/22 16:17*	*10/01/22 20:00*	*1*

Lab Sample ID: LCS 880-35625/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.06312	*-	mg/Kg		63	70 - 130		
Toluene			0.100	0.07231		mg/Kg		72	70 - 130		
Ethylbenzene			0.100	0.07030		mg/Kg		70	70 - 130		
m-Xylene & p-Xylene			0.200	0.1471		mg/Kg		74	70 - 130		
o-Xylene			0.100	0.07531		mg/Kg		75	70 - 130		

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

Lab Sample ID: LCSD 880-35625/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.06587	*-	mg/Kg		66	70 - 130	4	35
Toluene			0.100	0.07114		mg/Kg		71	70 - 130	2	35
Ethylbenzene			0.100	0.07179		mg/Kg		72	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1452		mg/Kg		73	70 - 130	1	35
o-Xylene			0.100	0.07431		mg/Kg		74	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U *-	0.101	0.09573		mg/Kg		95	70 - 130		
Toluene	<0.00201	U	0.101	0.09812		mg/Kg		98	70 - 130		

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

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

Lab Sample ID: 880-19417-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.101	0.08958		mg/Kg		89	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.201	0.1802		mg/Kg		90	70 - 130
o-Xylene	<0.00201	U	0.101	0.09000		mg/Kg		89	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 880-19417-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35625**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U *-	0.0990	0.09175		mg/Kg		93	70 - 130	4	35
Toluene	<0.00201	U	0.0990	0.1021		mg/Kg		103	70 - 130	4	35
Ethylbenzene	<0.00201	U	0.0990	0.1028		mg/Kg		104	70 - 130	14	35
m-Xylene & p-Xylene	<0.00402	U	0.198	0.2097		mg/Kg		106	70 - 130	15	35
o-Xylene	<0.00201	U	0.0990	0.1043		mg/Kg		105	70 - 130	15	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: MB 880-35628/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35815 — **Prep Batch: 35628**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/28/22 16:25	10/01/22 06:46	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/28/22 16:25	10/01/22 06:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*09/28/22 16:25*	*10/01/22 06:46*	*1*

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

Lab Sample ID: MB 880-35173/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35220 — **Prep Batch: 35173**

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		09/22/22 11:35	09/23/22 10:55	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-35173/1-A
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 35173

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		09/22/22 11:35	09/23/22 10:55	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/22/22 11:35	09/23/22 10:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*132*	*S1+*	*70 - 130*	*09/22/22 11:35*	*09/23/22 10:55*	*1*
o-Terphenyl	*148*	*S1+*	*70 - 130*	*09/22/22 11:35*	*09/23/22 10:55*	*1*

Lab Sample ID: LCS 880-35173/2-A
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 35173

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1137		mg/Kg		114	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*114*		*70 - 130*
o-Terphenyl	*118*		*70 - 130*

Lab Sample ID: LCSD 880-35173/3-A
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 35173

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	956.1		mg/Kg		96	70 - 130	17	20
Diesel Range Organics (Over C10-C28)			1000	922.2		mg/Kg		92	70 - 130	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*109*		*70 - 130*

Lab Sample ID: 890-3016-A-1-B MS
Matrix: Solid
Analysis Batch: 35220

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 35173

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	996	1077		mg/Kg		106	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U	996	896.9		mg/Kg		90	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*81*		*70 - 130*
o-Terphenyl	*73*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

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

Lab Sample ID: 890-3016-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 35220 — **Prep Batch: 35173**

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	<49.9	U	999	959.8		mg/Kg		94	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	839.3		mg/Kg		84	70 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*76*		*70 - 130*
o-Terphenyl	*67*	*S1-*	*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-35175/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/24/22 21:16	1

Lab Sample ID: LCS 880-35175/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	273.5		mg/Kg		109	90 - 110		

Lab Sample ID: LCSD 880-35175/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	266.4		mg/Kg		107	90 - 110	3	20

Lab Sample ID: 890-3015-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1470	F1	1250	2790		mg/Kg		106	90 - 110		

Lab Sample ID: 890-3015-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 35309

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1470	F1	1250	2906	F1	mg/Kg		115	90 - 110	4	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

GC VOA

Prep Batch: 35625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Total/NA	Solid	5035	
MB 880-35625/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 35628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-35628/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 35815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Total/NA	Solid	8021B	35625
MB 880-35625/5-A	Method Blank	Total/NA	Solid	8021B	35625
MB 880-35628/5-A	Method Blank	Total/NA	Solid	8021B	35628
LCS 880-35625/1-A	Lab Control Sample	Total/NA	Solid	8021B	35625
LCSD 880-35625/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	35625
880-19417-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	35625
880-19417-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	35625

Analysis Batch: 35882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 35173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Total/NA	Solid	8015NM Prep	
MB 880-35173/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-35173/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-35173/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3016-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3016-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 35220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Total/NA	Solid	8015B NM	35173
MB 880-35173/1-A	Method Blank	Total/NA	Solid	8015B NM	35173
LCS 880-35173/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	35173
LCSD 880-35173/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	35173
890-3016-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	35173
890-3016-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	35173

Analysis Batch: 35410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 35175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Soluble	Solid	DI Leach	
MB 880-35175/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-35175/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-35175/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3015-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3015-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 35309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3022-1	PH04D	Soluble	Solid	300.0	35175
MB 880-35175/1-A	Method Blank	Soluble	Solid	300.0	35175
LCS 880-35175/2-A	Lab Control Sample	Soluble	Solid	300.0	35175
LCSD 880-35175/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	35175
890-3015-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	35175
890-3015-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	35175

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

Client Sample ID: PH04D

Date Collected: 09/20/22 13:30
Date Received: 09/21/22 13:16

Lab Sample ID: 890-3022-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	35625	09/28/22 16:17	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	35815	10/02/22 03:04	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			35882	10/02/22 08:53	AJ	EET MID
Total/NA	Analysis	8015 NM		1			35410	09/26/22 13:20	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	35173	09/22/22 11:35	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	35220	09/23/22 19:31	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	35175	09/22/22 12:03	SMC	EET MID
Soluble	Analysis	300.0		10			35309	09/24/22 22:37	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3022-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3022-1	PH04D	Solid	09/20/22 13:30	09/21/22 13:16	10

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 106H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.771	Due Date:	
Sampler's Name:	Meredith Roberts	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:	TM007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	4.2	
Total Containers:		Corrected Temperature:	4.0	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH	BTEX	Chlorides
PH04D	S	9/21/22	1330	10'	G	1		X	X	X

ANALYSIS REQUEST

890-3022 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 Comments

Incident #: NAPP2102831345

Cost Center: 1368221001

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		9.21.22 1316	4		
3			6		
5					

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3022-1
SDG Number: 03E1558005

Login Number: 3022
List Number: 1
Creator: Clifton, Cloe

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.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3022-1
SDG Number: 03E1558005

Login Number: 3022
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 09/22/22 11:12 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3159-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29 W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/12/2022 11:18:01 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Laboratory Job ID: 890-3159-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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
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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

Job ID: 890-3159-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3159-1

Receipt
The sample was received on 10/5/2022 4:36 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: PH04F (890-3159-1).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36587 and analytical batch 880-36501 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance 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 method blank for preparation batch 880-36322 and analytical batch 880-36315 contained Diesel Range Organics (Over C10-C28) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); 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.

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

Client Sample ID: PH04F

Date Collected: 10/05/22 11:00
Date Received: 10/05/22 16:36
Sample Depth: 14

Lab Sample ID: 890-3159-1

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		10/10/22 13:15	10/11/22 04:05	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/10/22 13:15	10/11/22 04:05	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/10/22 13:15	10/11/22 04:05	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/10/22 13:15	10/11/22 04:05	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/10/22 13:15	10/11/22 04:05	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/10/22 13:15	10/11/22 04:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*	*10/10/22 13:15*	*10/11/22 04:05*	*1*
1,4-Difluorobenzene (Surr)	*61*	*S1-*	*70 - 130*	*10/10/22 13:15*	*10/11/22 04:05*	*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			10/11/22 09:03	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			10/10/22 12:14	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		10/07/22 07:42	10/07/22 15:08	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/07/22 07:42	10/07/22 15:08	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 07:42	10/07/22 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*10/07/22 07:42*	*10/07/22 15:08*	*1*
o-Terphenyl	*103*		*70 - 130*	*10/07/22 07:42*	*10/07/22 15:08*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**395**		5.00		mg/Kg			10/11/22 16:23	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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)										
890-3159-1	PH04F	100	61 S1-										
890-3163-A-1-E MS	Matrix Spike	72	59 S1-										
890-3163-A-1-F MSD	Matrix Spike Duplicate	117	95										
LCS 880-36587/1-A	Lab Control Sample	93	94										
LCSD 880-36587/2-A	Lab Control Sample Dup	93	93										
MB 880-36503/5-A	Method Blank	98	86										
MB 880-36587/5-A	Method Blank	105	84										

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)											
		1CO1	OTPH1										
Lab Sample ID	Client Sample ID	(70-130)	(70-130)										
890-3159-1	PH04F	93	103										
890-3171-A-1-C MS	Matrix Spike	79	78										
890-3171-A-1-D MSD	Matrix Spike Duplicate	80	79										
LCS 880-36322/2-A	Lab Control Sample	97	110										
LCSD 880-36322/3-A	Lab Control Sample Dup	98	110										
MB 880-36322/1-A	Method Blank	85	97										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36503/5-A
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36503

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/22 08:35	10/10/22 10:55	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/22 08:35	10/10/22 10:55	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/22 08:35	10/10/22 10:55	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/22 08:35	10/10/22 10:55	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/22 08:35	10/10/22 10:55	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/22 08:35	10/10/22 10:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*	*10/10/22 08:35*	*10/10/22 10:55*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*10/10/22 08:35*	*10/10/22 10:55*	*1*

Lab Sample ID: MB 880-36587/5-A
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36587

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/10/22 13:15	10/10/22 22:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/10/22 13:15	10/10/22 22:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/10/22 13:15	10/10/22 22:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/10/22 13:15	10/10/22 22:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/10/22 13:15	10/10/22 22:54	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/10/22 13:15	10/10/22 22:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*10/10/22 13:15*	*10/10/22 22:54*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*	*10/10/22 13:15*	*10/10/22 22:54*	*1*

Lab Sample ID: LCS 880-36587/1-A
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36587

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09350		mg/Kg		93	70 - 130		
Toluene			0.100	0.1003		mg/Kg		100	70 - 130		
Ethylbenzene			0.100	0.09771		mg/Kg		98	70 - 130		
m-Xylene & p-Xylene			0.200	0.2053		mg/Kg		103	70 - 130		
o-Xylene			0.100	0.1046		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 880-36587/2-A
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36587

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09306		mg/Kg		93	70 - 130	0	35

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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

Lab Sample ID: LCSD 880-36587/2-A
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36587

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.09756		mg/Kg		98	70 - 130	3	35
Ethylbenzene			0.100	0.09462		mg/Kg		95	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1987		mg/Kg		99	70 - 130	3	35
o-Xylene			0.100	0.1013		mg/Kg		101	70 - 130	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: 890-3163-A-1-E MS
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36587

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U F1 F2	0.0998	0.01619	F1	mg/Kg		16	70 - 130
Toluene	<0.00201	U F1 F2	0.0998	0.02961	F1	mg/Kg		29	70 - 130
Ethylbenzene	<0.00201	U F1 F2	0.0998	0.03554	F1	mg/Kg		36	70 - 130
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.200	0.04898	F1	mg/Kg		25	70 - 130
o-Xylene	<0.00201	U F1 F2	0.0998	0.02925	F1	mg/Kg		29	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*72*		*70 - 130*
1,4-Difluorobenzene (Surr)	*59*	*S1-*	*70 - 130*

Lab Sample ID: 890-3163-A-1-F MSD
Matrix: Solid
Analysis Batch: 36501

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36587

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U F1 F2	0.0996	0.03750	F1 F2	mg/Kg		38	70 - 130	79	35
Toluene	<0.00201	U F1 F2	0.0996	0.05387	F1 F2	mg/Kg		53	70 - 130	58	35
Ethylbenzene	<0.00201	U F1 F2	0.0996	0.05853	F1 F2	mg/Kg		59	70 - 130	49	35
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.199	0.1308	F1 F2	mg/Kg		66	70 - 130	91	35
o-Xylene	<0.00201	U F1 F2	0.0996	0.06767	F1 F2	mg/Kg		68	70 - 130	79	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

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

Lab Sample ID: MB 880-36322/1-A
Matrix: Solid
Analysis Batch: 36315

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36322

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		10/07/22 07:42	10/07/22 09:54	1

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-36322/1-A
Matrix: Solid
Analysis Batch: 36315

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36322

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		10/07/22 07:42	10/07/22 09:54	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/07/22 07:42	10/07/22 09:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*85*		*70 - 130*	*10/07/22 07:42*	*10/07/22 09:54*	*1*
o-Terphenyl	*97*		*70 - 130*	*10/07/22 07:42*	*10/07/22 09:54*	*1*

Lab Sample ID: LCS 880-36322/2-A
Matrix: Solid
Analysis Batch: 36315

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36322

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	920.4		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	985.5		mg/Kg		99	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*97*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: LCSD 880-36322/3-A
Matrix: Solid
Analysis Batch: 36315

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36322

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	992.9		mg/Kg		99	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	982.2		mg/Kg		98	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*98*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: 890-3171-A-1-C MS
Matrix: Solid
Analysis Batch: 36315

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36322

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	787.0		mg/Kg		77	70 - 130		
Diesel Range Organics (Over C10-C28)	115		998	877.5		mg/Kg		76	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*79*		*70 - 130*
o-Terphenyl	*78*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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

Lab Sample ID: 890-3171-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36315 — **Prep Batch: 36322**

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	<50.0	U	999	776.9		mg/Kg		76	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	115		999	976.6		mg/Kg		86	70 - 130	11	20

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

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36393/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/11/22 14:27	1

Lab Sample ID: LCS 880-36393/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	257.3		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-36393/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	246.5		mg/Kg		99	90 - 110	4	20

Lab Sample ID: 890-3157-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	152		251	391.7		mg/Kg		95	90 - 110		

Lab Sample ID: 890-3157-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	152		251	418.0		mg/Kg		106	90 - 110	6	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

GC VOA

Analysis Batch: 36501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Total/NA	Solid	8021B	36587
MB 880-36503/5-A	Method Blank	Total/NA	Solid	8021B	36503
MB 880-36587/5-A	Method Blank	Total/NA	Solid	8021B	36587
LCS 880-36587/1-A	Lab Control Sample	Total/NA	Solid	8021B	36587
LCSD 880-36587/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36587
890-3163-A-1-E MS	Matrix Spike	Total/NA	Solid	8021B	36587
890-3163-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36587

Prep Batch: 36503

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36503/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 36587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Total/NA	Solid	5035	
MB 880-36587/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36587/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36587/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3163-A-1-E MS	Matrix Spike	Total/NA	Solid	5035	
890-3163-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 36643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 36315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Total/NA	Solid	8015B NM	36322
MB 880-36322/1-A	Method Blank	Total/NA	Solid	8015B NM	36322
LCS 880-36322/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36322
LCSD 880-36322/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36322
890-3171-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	36322
890-3171-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36322

Prep Batch: 36322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Total/NA	Solid	8015NM Prep	
MB 880-36322/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36322/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36322/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3171-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3171-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36582

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Soluble	Solid	DI Leach	
MB 880-36393/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3157-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3157-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3159-1	PH04F	Soluble	Solid	300.0	36393
MB 880-36393/1-A	Method Blank	Soluble	Solid	300.0	36393
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	300.0	36393
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36393
890-3157-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	36393
890-3157-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36393

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

Client Sample ID: PH04F

Date Collected: 10/05/22 11:00
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3159-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	36587	10/10/22 13:15	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36501	10/11/22 04:05	AJ	EET MID
Total/NA	Analysis	Total BTEX		1			36643	10/11/22 09:03	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36582	10/10/22 12:14	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36322	10/07/22 07:42	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36315	10/07/22 15:08	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		1			36632	10/11/22 16:23	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3159-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3159-1	PH04F	Solid	10/05/22 11:00	10/05/22 16:36	14

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567,703.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	IRM009
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	8.2
Total Containers:		Corrected Temperature:	3.0

ANALYSIS REQUEST

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

890-3159 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: Chlorides	TPH	BTEX	Sample Comments
PH04F	S	10/5/22	1100	14'	G	1	X	X	X	Incident#: NAPP2102831345
										Cost Center: 1568221001

MK

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		Chloe Clay	10.5.22 1436			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM
10/12/2022

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3159-1
SDG Number: 03E1558005

Login Number: 3159
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3159-1
SDG Number: 03E1558005

Login Number: 3159
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/07/22 11:00 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3126-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/7/2022 2:28:43 PM

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

LINKS

Review your project results through my EOL

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU29W Vader 100H

Laboratory Job ID: 890-3126-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Job ID: 890-3126-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3126-1

Receipt

The samples were received on 10/3/2022 1:04 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.0°C

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: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Client Sample ID: FS01
Lab Sample ID: 890-3126-1
Date Collected: 09/30/22 11:25
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	505		25.0		mg/Kg			10/07/22 08:53	5

Client Sample ID: FS02
Lab Sample ID: 890-3126-2
Date Collected: 09/30/22 11:30
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	550		25.1		mg/Kg			10/07/22 09:16	5

Client Sample ID: FS03
Lab Sample ID: 890-3126-3
Date Collected: 09/30/22 11:35
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	562		25.2		mg/Kg			10/07/22 09:24	5

Client Sample ID: FS04
Lab Sample ID: 890-3126-4
Date Collected: 09/30/22 11:40
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	634		25.1		mg/Kg			10/07/22 09:31	5

Client Sample ID: FS05
Lab Sample ID: 890-3126-5
Date Collected: 09/30/22 11:45
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	483		24.8		mg/Kg			10/07/22 09:39	5

Client Sample ID: FS06
Lab Sample ID: 890-3126-6
Date Collected: 09/30/22 11:50
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1100		49.7		mg/Kg			10/07/22 10:02	10

Client Sample Results

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Client Sample ID: FS07
Lab Sample ID: 890-3126-7
Date Collected: 09/30/22 11:55
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1690		49.5		mg/Kg			10/07/22 10:10	10

Client Sample ID: FS08
Lab Sample ID: 890-3126-8
Date Collected: 09/30/22 12:00
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1460		49.8		mg/Kg			10/07/22 10:18	10

Client Sample ID: FS09
Lab Sample ID: 890-3126-9
Date Collected: 09/30/22 12:05
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2190		49.8		mg/Kg			10/07/22 10:25	10

Client Sample ID: FS10
Lab Sample ID: 890-3126-10
Date Collected: 09/30/22 12:10
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1240		25.0		mg/Kg			10/07/22 10:33	5

Client Sample ID: FS11
Lab Sample ID: 890-3126-11
Date Collected: 09/30/22 12:15
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1930		50.1		mg/Kg			10/07/22 10:41	10

Client Sample ID: FS12
Lab Sample ID: 890-3126-12
Date Collected: 09/30/22 12:20
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1580		50.3		mg/Kg			10/07/22 11:04	10

Client Sample Results

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Client Sample ID: FS13
Lab Sample ID: 890-3126-13
Date Collected: 09/30/22 12:25
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1160		25.0		mg/Kg			10/07/22 11:11	5

Client Sample ID: FS14
Lab Sample ID: 890-3126-14
Date Collected: 09/30/22 12:30
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1520		49.6		mg/Kg			10/07/22 11:35	10

Client Sample ID: FS15
Lab Sample ID: 890-3126-15
Date Collected: 09/30/22 12:35
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1940		50.3		mg/Kg			10/07/22 11:42	10

Client Sample ID: FS16
Lab Sample ID: 890-3126-16
Date Collected: 09/30/22 12:40
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2110		25.1		mg/Kg			10/07/22 11:50	5

Client Sample ID: FS17
Lab Sample ID: 890-3126-17
Date Collected: 09/30/22 12:45
Matrix: Solid
Date Received: 10/03/22 13:04
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1810		24.9		mg/Kg			10/07/22 11:58	5

QC Sample Results

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36168/1-A
Matrix: Solid
Analysis Batch: 36311

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			10/07/22 08:30	1

Lab Sample ID: LCS 880-36168/2-A
Matrix: Solid
Analysis Batch: 36311

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	267.0		mg/Kg		107	90 - 110		

Lab Sample ID: LCSD 880-36168/3-A
Matrix: Solid
Analysis Batch: 36311

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	260.7		mg/Kg		104	90 - 110	2	20

Lab Sample ID: 890-3126-1 MS
Matrix: Solid
Analysis Batch: 36311

Client Sample ID: FS01
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	505		1250	1799		mg/Kg		104	90 - 110		

Lab Sample ID: 890-3126-1 MSD
Matrix: Solid
Analysis Batch: 36311

Client Sample ID: FS01
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	505		1250	1878		mg/Kg		110	90 - 110	4	20

Lab Sample ID: 890-3126-11 MS
Matrix: Solid
Analysis Batch: 36311

Client Sample ID: FS11
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1930		2510	4615		mg/Kg		107	90 - 110		

Lab Sample ID: 890-3126-11 MSD
Matrix: Solid
Analysis Batch: 36311

Client Sample ID: FS11
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1930		2510	4632		mg/Kg		108	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3126-1	FS01	Soluble	Solid	DI Leach	
890-3126-2	FS02	Soluble	Solid	DI Leach	
890-3126-3	FS03	Soluble	Solid	DI Leach	
890-3126-4	FS04	Soluble	Solid	DI Leach	
890-3126-5	FS05	Soluble	Solid	DI Leach	
890-3126-6	FS06	Soluble	Solid	DI Leach	
890-3126-7	FS07	Soluble	Solid	DI Leach	
890-3126-8	FS08	Soluble	Solid	DI Leach	
890-3126-9	FS09	Soluble	Solid	DI Leach	
890-3126-10	FS10	Soluble	Solid	DI Leach	
890-3126-11	FS11	Soluble	Solid	DI Leach	
890-3126-12	FS12	Soluble	Solid	DI Leach	
890-3126-13	FS13	Soluble	Solid	DI Leach	
890-3126-14	FS14	Soluble	Solid	DI Leach	
890-3126-15	FS15	Soluble	Solid	DI Leach	
890-3126-16	FS16	Soluble	Solid	DI Leach	
890-3126-17	FS17	Soluble	Solid	DI Leach	
MB 880-36168/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36168/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36168/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3126-1 MS	FS01	Soluble	Solid	DI Leach	
890-3126-1 MSD	FS01	Soluble	Solid	DI Leach	
890-3126-11 MS	FS11	Soluble	Solid	DI Leach	
890-3126-11 MSD	FS11	Soluble	Solid	DI Leach	

Analysis Batch: 36311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3126-1	FS01	Soluble	Solid	300.0	36168
890-3126-2	FS02	Soluble	Solid	300.0	36168
890-3126-3	FS03	Soluble	Solid	300.0	36168
890-3126-4	FS04	Soluble	Solid	300.0	36168
890-3126-5	FS05	Soluble	Solid	300.0	36168
890-3126-6	FS06	Soluble	Solid	300.0	36168
890-3126-7	FS07	Soluble	Solid	300.0	36168
890-3126-8	FS08	Soluble	Solid	300.0	36168
890-3126-9	FS09	Soluble	Solid	300.0	36168
890-3126-10	FS10	Soluble	Solid	300.0	36168
890-3126-11	FS11	Soluble	Solid	300.0	36168
890-3126-12	FS12	Soluble	Solid	300.0	36168
890-3126-13	FS13	Soluble	Solid	300.0	36168
890-3126-14	FS14	Soluble	Solid	300.0	36168
890-3126-15	FS15	Soluble	Solid	300.0	36168
890-3126-16	FS16	Soluble	Solid	300.0	36168
890-3126-17	FS17	Soluble	Solid	300.0	36168
MB 880-36168/1-A	Method Blank	Soluble	Solid	300.0	36168
LCS 880-36168/2-A	Lab Control Sample	Soluble	Solid	300.0	36168
LCSD 880-36168/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36168
890-3126-1 MS	FS01	Soluble	Solid	300.0	36168
890-3126-1 MSD	FS01	Soluble	Solid	300.0	36168
890-3126-11 MS	FS11	Soluble	Solid	300.0	36168
890-3126-11 MSD	FS11	Soluble	Solid	300.0	36168

Lab Chronicle

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Client Sample ID: FS01
Date Collected: 09/30/22 11:25
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-1
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			5.01 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 08:53	CH	EET MID

Client Sample ID: FS02
Date Collected: 09/30/22 11:30
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 09:16	CH	EET MID

Client Sample ID: FS03
Date Collected: 09/30/22 11:35
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 09:24	CH	EET MID

Client Sample ID: FS04
Date Collected: 09/30/22 11:40
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 09:31	CH	EET MID

Client Sample ID: FS05
Date Collected: 09/30/22 11:45
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-5
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			5.04 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 09:39	CH	EET MID

Client Sample ID: FS06
Date Collected: 09/30/22 11:50
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-6
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	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 10:02	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Client Sample ID: FS07
Date Collected: 09/30/22 11:55
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-7
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			5.05 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 10:10	CH	EET MID

Client Sample ID: FS08
Date Collected: 09/30/22 12:00
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-8
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			5.02 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 10:18	CH	EET MID

Client Sample ID: FS09
Date Collected: 09/30/22 12:05
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-9
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			5.02 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 10:25	CH	EET MID

Client Sample ID: FS10
Date Collected: 09/30/22 12:10
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-10
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			5.01 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 10:33	CH	EET MID

Client Sample ID: FS11
Date Collected: 09/30/22 12:15
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 10:41	CH	EET MID

Client Sample ID: FS12
Date Collected: 09/30/22 12:20
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 11:04	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Client Sample ID: FS13
Date Collected: 09/30/22 12:25
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-13
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			5.01 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 11:11	CH	EET MID

Client Sample ID: FS14
Date Collected: 09/30/22 12:30
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-14
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			5.04 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 11:35	CH	EET MID

Client Sample ID: FS15
Date Collected: 09/30/22 12:35
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		10			36311	10/07/22 11:42	CH	EET MID

Client Sample ID: FS16
Date Collected: 09/30/22 12:40
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 11:50	CH	EET MID

Client Sample ID: FS17
Date Collected: 09/30/22 12:45
Date Received: 10/03/22 13:04

Lab Sample ID: 890-3126-17
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	36168	10/05/22 10:50	KS	EET MID
Soluble	Analysis	300.0		5			36311	10/07/22 11:58	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU29W Vader 100H

Job ID: 890-3126-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3126-1	FS01	Solid	09/30/22 11:25	10/03/22 13:04	4'
890-3126-2	FS02	Solid	09/30/22 11:30	10/03/22 13:04	4'
890-3126-3	FS03	Solid	09/30/22 11:35	10/03/22 13:04	4'
890-3126-4	FS04	Solid	09/30/22 11:40	10/03/22 13:04	4'
890-3126-5	FS05	Solid	09/30/22 11:45	10/03/22 13:04	4'
890-3126-6	FS06	Solid	09/30/22 11:50	10/03/22 13:04	4'
890-3126-7	FS07	Solid	09/30/22 11:55	10/03/22 13:04	4'
890-3126-8	FS08	Solid	09/30/22 12:00	10/03/22 13:04	4'
890-3126-9	FS09	Solid	09/30/22 12:05	10/03/22 13:04	4'
890-3126-10	FS10	Solid	09/30/22 12:10	10/03/22 13:04	4'
890-3126-11	FS11	Solid	09/30/22 12:15	10/03/22 13:04	4'
890-3126-12	FS12	Solid	09/30/22 12:20	10/03/22 13:04	4'
890-3126-13	FS13	Solid	09/30/22 12:25	10/03/22 13:04	4'
890-3126-14	FS14	Solid	09/30/22 12:30	10/03/22 13:04	4'
890-3126-15	FS15	Solid	09/30/22 12:35	10/03/22 13:04	4'
890-3126-16	FS16	Solid	09/30/22 12:40	10/03/22 13:04	4'
890-3126-17	FS17	Solid	09/30/22 12:45	10/03/22 13:04	4'

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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: _____

www.xenco.com Page 1 of 2

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E. Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503	Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	TRM007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	5.2
Total Containers:		Corrected Temperature:	5.0

ANALYSIS REQUEST

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

890-3126 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides	Sample Comments
FS01	S	9/30/22	1125	4'	C	1		X	Incident # NAPP2102831345
FS02			1130						
FS03			1135						
FS04			1140						Cost Center: 1568221001
FS05			1145						
FS06			1150						
FS07			1155						
FS08			1200						
FS09			1205						
FS10			1210						

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			10-3-22 1304			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM

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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: _____

www.xenco.com Page 2 of 2

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:	
Cooler Custody Seals:	Yes No N/A		Correction Factor:	
Sample Custody Seals:	Yes No N/A		Temperature Reading:	
Total Containers:			Corrected Temperature:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides	Sample Comments
FS11	S	9/30/22	1215	4'	C	1		X	Incident #: NAPP2102831345
FS12			1220						
FS13			1225						
FS14			1230						Coir Center: 156822100
FS15			1235						
FS16			1240						
FS17			1245						

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

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		10.3.221304	4		
3			6		
5					

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM
10/7/2022

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3126-1
SDG Number: 03E1558005

Login Number: 3126
List Number: 1
Creator: Stutzman, Amanda

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.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3126-1
SDG Number: 03E1558005

Login Number: 3126
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/04/22 10:34 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3134-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H
Revision: 1

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/21/2022 12:36:29 PM

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

LINKS

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Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3134-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Job ID: 890-3134-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3134-1

Receipt
The samples were received on 10/3/2022 4:28 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36232 and analytical batch 880-36312 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.

Job ID: 890-3134-2

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3134-2

Receipt
The samples were received on 10/3/2022 4:28 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37355 and analytical batch 880-37359 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (LCS 880-37355/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: The following sample was received outside of holding time: SW02 (890-3134-10).

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

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Client Sample ID: FS18
Lab Sample ID: 890-3134-1
Date Collected: 10/03/22 11:10
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	891		49.5		mg/Kg			10/06/22 19:52	10

Client Sample ID: FS19
Lab Sample ID: 890-3134-2
Date Collected: 10/03/22 11:15
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1180		50.1		mg/Kg			10/06/22 19:58	10

Client Sample ID: FS20
Lab Sample ID: 890-3134-3
Date Collected: 10/03/22 11:20
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1530		49.9		mg/Kg			10/06/22 20:03	10

Client Sample ID: FS21
Lab Sample ID: 890-3134-4
Date Collected: 10/03/22 11:25
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	891		24.8		mg/Kg			10/06/22 20:09	5

Client Sample ID: FS22
Lab Sample ID: 890-3134-5
Date Collected: 10/03/22 11:30
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1150	F1	25.3		mg/Kg			10/06/22 20:15	5

Client Sample ID: FS23
Lab Sample ID: 890-3134-6
Date Collected: 10/03/22 11:35
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2470		24.9		mg/Kg			10/06/22 20:33	5

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Client Sample ID: FS24
Lab Sample ID: 890-3134-7
Date Collected: 10/03/22 11:40
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1380		49.9		mg/Kg			10/06/22 20:38	10

Client Sample ID: FS25
Lab Sample ID: 890-3134-8
Date Collected: 10/03/22 11:45
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1470		49.5		mg/Kg			10/06/22 20:56	10

Client Sample ID: FS26
Lab Sample ID: 890-3134-9
Date Collected: 10/03/22 11:50
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1970		50.0		mg/Kg			10/06/22 21:02	10

Client Sample ID: SW02
Lab Sample ID: 890-3134-10
Date Collected: 10/03/22 13:25
Matrix: Solid
Date Received: 10/03/22 16:28
Sample Depth: 0-4'

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			10/21/22 10:56	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 H	50.0		mg/Kg		10/20/22 15:00	10/20/22 19:40	1
Diesel Range Organics (Over C10-C28)	<50.0	U H	50.0		mg/Kg		10/20/22 15:00	10/20/22 19:40	1
Oil Range Organics (Over C28-C36)	<50.0	U H	50.0		mg/Kg		10/20/22 15:00	10/20/22 19:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*100*		*70 - 130*	*10/20/22 15:00*	*10/20/22 19:40*	*1*
o-Terphenyl	*111*		*70 - 130*	*10/20/22 15:00*	*10/20/22 19:40*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	743		25.0		mg/Kg			10/06/22 21:08	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)										
880-20551-A-11-C MS	Matrix Spike	77	78										
880-20551-A-11-D MSD	Matrix Spike Duplicate	72	72										
890-3134-10	SW02	100	111										
LCS 880-37355/2-A	Lab Control Sample	114	133 S1+										
LCSD 880-37355/3-A	Lab Control Sample Dup	99	111										
MB 880-37355/1-A	Method Blank	119	134 S1+										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-37355/1-A
Matrix: Solid
Analysis Batch: 37359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37355

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		10/20/22 08:21	10/20/22 11:03	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/20/22 08:21	10/20/22 11:03	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/20/22 08:21	10/20/22 11:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*119*		*70 - 130*	*10/20/22 08:21*	*10/20/22 11:03*	*1*
o-Terphenyl	*134*	*S1+*	*70 - 130*	*10/20/22 08:21*	*10/20/22 11:03*	*1*

Lab Sample ID: LCS 880-37355/2-A
Matrix: Solid
Analysis Batch: 37359

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37355

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	803.0		mg/Kg		80	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1045		mg/Kg		105	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*114*		*70 - 130*
o-Terphenyl	*133*	*S1+*	*70 - 130*

Lab Sample ID: LCSD 880-37355/3-A
Matrix: Solid
Analysis Batch: 37359

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37355

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	908.2		mg/Kg		91	70 - 130	12	20
Diesel Range Organics (Over C10-C28)			1000	903.5		mg/Kg		90	70 - 130	15	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*99*		*70 - 130*
o-Terphenyl	*111*		*70 - 130*

Lab Sample ID: 880-20551-A-11-C MS
Matrix: Solid
Analysis Batch: 37359

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37355

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	998	1055		mg/Kg		104	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.8	U	998	875.6		mg/Kg		84	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

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

Lab Sample ID: 880-20551-A-11-C MS
Matrix: Solid
Analysis Batch: 37359

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37355

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	77		70 - 130
o-Terphenyl	78		70 - 130

Lab Sample ID: 880-20551-A-11-D MSD
Matrix: Solid
Analysis Batch: 37359

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37355

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	998	1039		mg/Kg		102	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	856.7		mg/Kg		82	70 - 130	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	72		70 - 130
o-Terphenyl	72		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36232/1-A
Matrix: Solid
Analysis Batch: 36312

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			10/06/22 18:36	1

Lab Sample ID: LCS 880-36232/2-A
Matrix: Solid
Analysis Batch: 36312

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	255.8		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-36232/3-A
Matrix: Solid
Analysis Batch: 36312

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	240.0		mg/Kg		96	90 - 110	6	20

Lab Sample ID: 890-3134-5 MS
Matrix: Solid
Analysis Batch: 36312

Client Sample ID: FS22
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1150	F1	1260	2238	F1	mg/Kg		86	90 - 110		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-3134-5 MSD
Matrix: Solid
Analysis Batch: 36312

Client Sample ID: FS22
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1150	F1	1260	2415		mg/Kg		100	90 - 110	8	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

GC Semi VOA

Prep Batch: 37355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3134-10	SW02	Total/NA	Solid	8015NM Prep	
MB 880-37355/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37355/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37355/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20551-A-11-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20551-A-11-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3134-10	SW02	Total/NA	Solid	8015B NM	37355
MB 880-37355/1-A	Method Blank	Total/NA	Solid	8015B NM	37355
LCS 880-37355/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37355
LCSD 880-37355/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37355
880-20551-A-11-C MS	Matrix Spike	Total/NA	Solid	8015B NM	37355
880-20551-A-11-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37355

Analysis Batch: 37476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3134-10	SW02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 36232

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3134-1	FS18	Soluble	Solid	DI Leach	
890-3134-2	FS19	Soluble	Solid	DI Leach	
890-3134-3	FS20	Soluble	Solid	DI Leach	
890-3134-4	FS21	Soluble	Solid	DI Leach	
890-3134-5	FS22	Soluble	Solid	DI Leach	
890-3134-6	FS23	Soluble	Solid	DI Leach	
890-3134-7	FS24	Soluble	Solid	DI Leach	
890-3134-8	FS25	Soluble	Solid	DI Leach	
890-3134-9	FS26	Soluble	Solid	DI Leach	
890-3134-10	SW02	Soluble	Solid	DI Leach	
MB 880-36232/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36232/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36232/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3134-5 MS	FS22	Soluble	Solid	DI Leach	
890-3134-5 MSD	FS22	Soluble	Solid	DI Leach	

Analysis Batch: 36312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3134-1	FS18	Soluble	Solid	300.0	36232
890-3134-2	FS19	Soluble	Solid	300.0	36232
890-3134-3	FS20	Soluble	Solid	300.0	36232
890-3134-4	FS21	Soluble	Solid	300.0	36232
890-3134-5	FS22	Soluble	Solid	300.0	36232
890-3134-6	FS23	Soluble	Solid	300.0	36232
890-3134-7	FS24	Soluble	Solid	300.0	36232
890-3134-8	FS25	Soluble	Solid	300.0	36232
890-3134-9	FS26	Soluble	Solid	300.0	36232

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

HPLC/IC (Continued)

Analysis Batch: 36312 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3134-10	SW02	Soluble	Solid	300.0	36232
MB 880-36232/1-A	Method Blank	Soluble	Solid	300.0	36232
LCS 880-36232/2-A	Lab Control Sample	Soluble	Solid	300.0	36232
LCSD 880-36232/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36232
890-3134-5 MS	FS22	Soluble	Solid	300.0	36232
890-3134-5 MSD	FS22	Soluble	Solid	300.0	36232

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Client Sample ID: FS18
Date Collected: 10/03/22 11:10
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-1
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			5.05 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		10			36312	10/06/22 19:52	CH	EET MID

Client Sample ID: FS19
Date Collected: 10/03/22 11:15
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		10			36312	10/06/22 19:58	CH	EET MID

Client Sample ID: FS20
Date Collected: 10/03/22 11:20
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-3
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			5.01 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		10			36312	10/06/22 20:03	CH	EET MID

Client Sample ID: FS21
Date Collected: 10/03/22 11:25
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-4
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			5.05 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		5			36312	10/06/22 20:09	CH	EET MID

Client Sample ID: FS22
Date Collected: 10/03/22 11:30
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		5			36312	10/06/22 20:15	CH	EET MID

Client Sample ID: FS23
Date Collected: 10/03/22 11:35
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-6
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	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		5			36312	10/06/22 20:33	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Client Sample ID: FS24
Date Collected: 10/03/22 11:40
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-7
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			5.01 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		10			36312	10/06/22 20:38	CH	EET MID

Client Sample ID: FS25
Date Collected: 10/03/22 11:45
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-8
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			5.05 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		10			36312	10/06/22 20:56	CH	EET MID

Client Sample ID: FS26
Date Collected: 10/03/22 11:50
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-9
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 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		10			36312	10/06/22 21:02	CH	EET MID

Client Sample ID: SW02
Date Collected: 10/03/22 13:25
Date Received: 10/03/22 16:28

Lab Sample ID: 890-3134-10
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			37476	10/21/22 10:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	37355	10/20/22 15:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37359	10/20/22 19:40	SM	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	36232	10/06/22 09:40	CH	EET MID
Soluble	Analysis	300.0		5			36312	10/06/22 21:08	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
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	MCAWW	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3134-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3134-1	FS18	Solid	10/03/22 11:10	10/03/22 16:28	4'
890-3134-2	FS19	Solid	10/03/22 11:15	10/03/22 16:28	4'
890-3134-3	FS20	Solid	10/03/22 11:20	10/03/22 16:28	4'
890-3134-4	FS21	Solid	10/03/22 11:25	10/03/22 16:28	4'
890-3134-5	FS22	Solid	10/03/22 11:30	10/03/22 16:28	4'
890-3134-6	FS23	Solid	10/03/22 11:35	10/03/22 16:28	4'
890-3134-7	FS24	Solid	10/03/22 11:40	10/03/22 16:28	4'
890-3134-8	FS25	Solid	10/03/22 11:45	10/03/22 16:28	4'
890-3134-9	FS26	Solid	10/03/22 11:50	10/03/22 16:28	4'
890-3134-10	SW02	Solid	10/03/22 13:25	10/03/22 16:28	0-4'

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Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	BEU 29W Water 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E155 8005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	IAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	5.8
Total Containers:		Corrected Temperature:	5.6

ANALYSIS REQUEST

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	Chlorides	Sample Comments
FS18	S	10/3/22	1110	4'	C	1	X	Incident #: NAPP2102831345
FS19			1115					
FS20			1120					
FS21			1125					Cost Center: 1568221001
FS22			1130					
FS23			1135					
FS24			1140					
FS25			1145					
FS26			1150					
SW02			1325	0-4'				

890-3134 Chain of Custody

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		Amanda Stutz	10/3/22 1628			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3134-1
SDG Number: 03E1558005

Login Number: 3134
List Number: 1
Creator: Stutzman, Amanda

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.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3134-1
SDG Number: 03E1558005

Login Number: 3134
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/05/22 10:51 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3140-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/10/2022 8:38:28 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3140-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Job ID: 890-3140-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3140-1

Receipt
The samples were received on 10/4/2022 4:25 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 7.0°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: FS27 (890-3140-1), FS28 (890-3140-2), FS29 (890-3140-3), FS30 (890-3140-4), FS31 (890-3140-5), FS32 (890-3140-6), FS33 (890-3140-7), FS34 (890-3140-8) and FS35 (890-3140-9).

The following samples were received at the laboratory outside the required temperature criteria: FS27 (890-3140-1), FS28 (890-3140-2), FS29 (890-3140-3), FS30 (890-3140-4), FS31 (890-3140-5), FS32 (890-3140-6), FS33 (890-3140-7), FS34 (890-3140-8) and FS35 (890-3140-9). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to <CHOOSE_ONE> proceed with/cancel analysis.
890-3140
Samples received out of temp range 7.2/7.0 client wanted to proceed with testing.

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36234 and analytical batch 880-36484 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.

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Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Client Sample ID: FS27
Lab Sample ID: 890-3140-1
Date Collected: 10/04/22 11:15
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3390		100		mg/Kg			10/08/22 10:57	20

Client Sample ID: FS28
Lab Sample ID: 890-3140-2
Date Collected: 10/04/22 11:20
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1820		49.7		mg/Kg			10/08/22 11:04	10

Client Sample ID: FS29
Lab Sample ID: 890-3140-3
Date Collected: 10/04/22 11:25
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1540		49.5		mg/Kg			10/08/22 11:27	10

Client Sample ID: FS30
Lab Sample ID: 890-3140-4
Date Collected: 10/04/22 11:30
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1500		49.6		mg/Kg			10/08/22 11:35	10

Client Sample ID: FS31
Lab Sample ID: 890-3140-5
Date Collected: 10/04/22 11:35
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1420		50.5		mg/Kg			10/08/22 11:43	10

Client Sample ID: FS32
Lab Sample ID: 890-3140-6
Date Collected: 10/04/22 11:40
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	111		5.00		mg/Kg			10/08/22 11:51	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Client Sample ID: FS33
Lab Sample ID: 890-3140-7

Date Collected: 10/04/22 11:45
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	65.0		4.98		mg/Kg			10/08/22 11:58	1

Client Sample ID: FS34
Lab Sample ID: 890-3140-8

Date Collected: 10/04/22 11:50
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	442		5.00		mg/Kg			10/08/22 12:06	1

Client Sample ID: FS35
Lab Sample ID: 890-3140-9

Date Collected: 10/04/22 11:55
Matrix: Solid
Date Received: 10/04/22 16:25
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		25.0		mg/Kg			10/08/22 12:14	5

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36234/1-A
Matrix: Solid
Analysis Batch: 36484

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			10/08/22 08:23	1

Lab Sample ID: LCS 880-36234/2-A
Matrix: Solid
Analysis Batch: 36484

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	274.4		mg/Kg		110	90 - 110		

Lab Sample ID: LCSD 880-36234/3-A
Matrix: Solid
Analysis Batch: 36484

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	266.3		mg/Kg		107	90 - 110	3	20

Lab Sample ID: 890-3139-A-8-C MS
Matrix: Solid
Analysis Batch: 36484

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	116	F1	250	518.0	F1	mg/Kg		161	90 - 110		

Lab Sample ID: 890-3139-A-8-D MSD
Matrix: Solid
Analysis Batch: 36484

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	116	F1	250	507.5	F1	mg/Kg		157	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36234

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3140-1	FS27	Soluble	Solid	DI Leach	
890-3140-2	FS28	Soluble	Solid	DI Leach	
890-3140-3	FS29	Soluble	Solid	DI Leach	
890-3140-4	FS30	Soluble	Solid	DI Leach	
890-3140-5	FS31	Soluble	Solid	DI Leach	
890-3140-6	FS32	Soluble	Solid	DI Leach	
890-3140-7	FS33	Soluble	Solid	DI Leach	
890-3140-8	FS34	Soluble	Solid	DI Leach	
890-3140-9	FS35	Soluble	Solid	DI Leach	
MB 880-36234/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36234/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36234/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3139-A-8-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3139-A-8-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3140-1	FS27	Soluble	Solid	300.0	36234
890-3140-2	FS28	Soluble	Solid	300.0	36234
890-3140-3	FS29	Soluble	Solid	300.0	36234
890-3140-4	FS30	Soluble	Solid	300.0	36234
890-3140-5	FS31	Soluble	Solid	300.0	36234
890-3140-6	FS32	Soluble	Solid	300.0	36234
890-3140-7	FS33	Soluble	Solid	300.0	36234
890-3140-8	FS34	Soluble	Solid	300.0	36234
890-3140-9	FS35	Soluble	Solid	300.0	36234
MB 880-36234/1-A	Method Blank	Soluble	Solid	300.0	36234
LCS 880-36234/2-A	Lab Control Sample	Soluble	Solid	300.0	36234
LCSD 880-36234/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36234
890-3139-A-8-C MS	Matrix Spike	Soluble	Solid	300.0	36234
890-3139-A-8-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36234

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Client Sample ID: FS27
Date Collected: 10/04/22 11:15
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-1
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 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		20			36484	10/08/22 10:57	CH	EET MID

Client Sample ID: FS28
Date Collected: 10/04/22 11:20
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-2
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	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		10			36484	10/08/22 11:04	CH	EET MID

Client Sample ID: FS29
Date Collected: 10/04/22 11:25
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-3
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			5.05 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		10			36484	10/08/22 11:27	CH	EET MID

Client Sample ID: FS30
Date Collected: 10/04/22 11:30
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-4
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			5.04 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		10			36484	10/08/22 11:35	CH	EET MID

Client Sample ID: FS31
Date Collected: 10/04/22 11:35
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		10			36484	10/08/22 11:43	CH	EET MID

Client Sample ID: FS32
Date Collected: 10/04/22 11:40
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-6
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 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		1			36484	10/08/22 11:51	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Client Sample ID: FS33
Date Collected: 10/04/22 11:45
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-7
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			5.02 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		1			36484	10/08/22 11:58	CH	EET MID

Client Sample ID: FS34
Date Collected: 10/04/22 11:50
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-8
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 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		1			36484	10/08/22 12:06	CH	EET MID

Client Sample ID: FS35
Date Collected: 10/04/22 11:55
Date Received: 10/04/22 16:25

Lab Sample ID: 890-3140-9
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 g	50 mL	36234	10/06/22 09:45	CH	EET MID
Soluble	Analysis	300.0		5			36484	10/08/22 12:14	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3140-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3140-1	FS27	Solid	10/04/22 11:15	10/04/22 16:25	4'
890-3140-2	FS28	Solid	10/04/22 11:20	10/04/22 16:25	4'
890-3140-3	FS29	Solid	10/04/22 11:25	10/04/22 16:25	4'
890-3140-4	FS30	Solid	10/04/22 11:30	10/04/22 16:25	4'
890-3140-5	FS31	Solid	10/04/22 11:35	10/04/22 16:25	4'
890-3140-6	FS32	Solid	10/04/22 11:40	10/04/22 16:25	4'
890-3140-7	FS33	Solid	10/04/22 11:45	10/04/22 16:25	4'
890-3140-8	FS34	Solid	10/04/22 11:50	10/04/22 16:25	4'
890-3140-9	FS35	Solid	10/04/22 11:55	10/04/22 16:25	4'

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817 683 2503	Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567703.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:	TMH007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	7.0	
Total Containers:		Corrected Temperature:	7.0	

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

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides
FS27	S	10/4/22	1115	4'	C	1		X
FS28			1120					
FS29			1125					
FS30			1130					
FS31			1135					
FS32			1140					
FS33			1145					
FS34			1150					
FS35			1155					

890-3140 Chain of Custody

Sample Comments

Incident #:
NAPP2107831345

Cost Center:
1568221001

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		10.4.22 1685	4		
3			6		
5					

Revised Date: 08/25/2020 Rev 2020.2

Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3140-1
SDG Number: 03E1558005

Login Number: 3140
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3140-1
SDG Number: 03E1558005

Login Number: 3140
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/05/22 12:21 PM

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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3158-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/12/2022 11:18:01 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Laboratory Job ID: 890-3158-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Job ID: 890-3158-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3158-1

Receipt
The samples were received on 10/5/2022 4:36 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: FS36 (890-3158-1), FS37 (890-3158-2), FS38 (890-3158-3), FS39 (890-3158-4), FS40 (890-3158-5), FS41 (890-3158-6), FS42 (890-3158-7), FS43 (890-3158-8) and FS44 (890-3158-9).

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Client Sample ID: FS36
Lab Sample ID: 890-3158-1
Date Collected: 10/05/22 11:10
Matrix: Solid
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1440		50.0		mg/Kg			10/11/22 15:08	10

Client Sample ID: FS37
Lab Sample ID: 890-3158-2
Date Collected: 10/05/22 11:15
Matrix: Solid
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1250		25.0		mg/Kg			10/11/22 15:13	5

Client Sample ID: FS38
Lab Sample ID: 890-3158-3
Date Collected: 10/05/22 11:20
Matrix: Solid
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1190		25.2		mg/Kg			10/11/22 15:19	5

Client Sample ID: FS39
Lab Sample ID: 890-3158-4
Date Collected: 10/05/22 11:25
Matrix: Solid
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1250		49.7		mg/Kg			10/11/22 15:37	10

Client Sample ID: FS40
Lab Sample ID: 890-3158-5
Date Collected: 10/05/22 11:30
Matrix: Solid
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1440		24.8		mg/Kg			10/11/22 15:43	5

Client Sample ID: FS41
Lab Sample ID: 890-3158-6
Date Collected: 10/05/22 11:35
Matrix: Solid
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1650		24.0		mg/Kg			10/11/22 15:48	5

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Client Sample ID: FS42

Lab Sample ID: 890-3158-7
Matrix: Solid
Date Collected: 10/05/22 11:40
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1200		50.0		mg/Kg			10/11/22 15:54	10

Client Sample ID: FS43

Lab Sample ID: 890-3158-8
Matrix: Solid
Date Collected: 10/05/22 11:45
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	727		49.6		mg/Kg			10/11/22 16:00	10

Client Sample ID: FS44

Lab Sample ID: 890-3158-9
Matrix: Solid
Date Collected: 10/05/22 11:50
Date Received: 10/05/22 16:36
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1110		49.5		mg/Kg			10/11/22 16:06	10

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36393/1-A
Matrix: Solid
Analysis Batch: 36632

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			10/11/22 14:27	1

Lab Sample ID: LCS 880-36393/2-A
Matrix: Solid
Analysis Batch: 36632

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	257.3		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-36393/3-A
Matrix: Solid
Analysis Batch: 36632

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	246.5		mg/Kg		99	90 - 110	4	20

Lab Sample ID: 890-3158-9 MS
Matrix: Solid
Analysis Batch: 36632

Client Sample ID: FS44
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1110		2480	3579		mg/Kg		100	90 - 110		

Lab Sample ID: 890-3158-9 MSD
Matrix: Solid
Analysis Batch: 36632

Client Sample ID: FS44
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1110		2480	3740		mg/Kg		106	90 - 110	4	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3158-1	FS36	Soluble	Solid	DI Leach	
890-3158-2	FS37	Soluble	Solid	DI Leach	
890-3158-3	FS38	Soluble	Solid	DI Leach	
890-3158-4	FS39	Soluble	Solid	DI Leach	
890-3158-5	FS40	Soluble	Solid	DI Leach	
890-3158-6	FS41	Soluble	Solid	DI Leach	
890-3158-7	FS42	Soluble	Solid	DI Leach	
890-3158-8	FS43	Soluble	Solid	DI Leach	
890-3158-9	FS44	Soluble	Solid	DI Leach	
MB 880-36393/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3158-9 MS	FS44	Soluble	Solid	DI Leach	
890-3158-9 MSD	FS44	Soluble	Solid	DI Leach	

Analysis Batch: 36632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3158-1	FS36	Soluble	Solid	300.0	36393
890-3158-2	FS37	Soluble	Solid	300.0	36393
890-3158-3	FS38	Soluble	Solid	300.0	36393
890-3158-4	FS39	Soluble	Solid	300.0	36393
890-3158-5	FS40	Soluble	Solid	300.0	36393
890-3158-6	FS41	Soluble	Solid	300.0	36393
890-3158-7	FS42	Soluble	Solid	300.0	36393
890-3158-8	FS43	Soluble	Solid	300.0	36393
890-3158-9	FS44	Soluble	Solid	300.0	36393
MB 880-36393/1-A	Method Blank	Soluble	Solid	300.0	36393
LCS 880-36393/2-A	Lab Control Sample	Soluble	Solid	300.0	36393
LCSD 880-36393/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36393
890-3158-9 MS	FS44	Soluble	Solid	300.0	36393
890-3158-9 MSD	FS44	Soluble	Solid	300.0	36393

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Client Sample ID: FS36
Date Collected: 10/05/22 11:10
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3158-1
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 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		10			36632	10/11/22 15:08	CH	EET MID

Client Sample ID: FS37
Date Collected: 10/05/22 11:15
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3158-2
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			5.01 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		5			36632	10/11/22 15:13	CH	EET MID

Client Sample ID: FS38
Date Collected: 10/05/22 11:20
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3158-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		5			36632	10/11/22 15:19	CH	EET MID

Client Sample ID: FS39
Date Collected: 10/05/22 11:25
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3158-4
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	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		10			36632	10/11/22 15:37	CH	EET MID

Client Sample ID: FS40
Date Collected: 10/05/22 11:30
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3158-5
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			5.05 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		5			36632	10/11/22 15:43	CH	EET MID

Client Sample ID: FS41
Date Collected: 10/05/22 11:35
Date Received: 10/05/22 16:36

Lab Sample ID: 890-3158-6
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			5.2 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		5			36632	10/11/22 15:48	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Client Sample ID: FS42

Lab Sample ID: 890-3158-7
Matrix: Solid
Date Collected: 10/05/22 11:40
Date Received: 10/05/22 16:36

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 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		10			36632	10/11/22 15:54	CH	EET MID

Client Sample ID: FS43

Lab Sample ID: 890-3158-8
Matrix: Solid
Date Collected: 10/05/22 11:45
Date Received: 10/05/22 16:36

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.04 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		10			36632	10/11/22 16:00	CH	EET MID

Client Sample ID: FS44

Lab Sample ID: 890-3158-9
Matrix: Solid
Date Collected: 10/05/22 11:50
Date Received: 10/05/22 16:36

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.05 g	50 mL	36393	10/07/22 15:12	CH	EET MID
Soluble	Analysis	300.0		10			36632	10/11/22 16:06	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3158-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3158-1	FS36	Solid	10/05/22 11:10	10/05/22 16:36	4
890-3158-2	FS37	Solid	10/05/22 11:15	10/05/22 16:36	4
890-3158-3	FS38	Solid	10/05/22 11:20	10/05/22 16:36	4
890-3158-4	FS39	Solid	10/05/22 11:25	10/05/22 16:36	4
890-3158-5	FS40	Solid	10/05/22 11:30	10/05/22 16:36	4
890-3158-6	FS41	Solid	10/05/22 11:35	10/05/22 16:36	4
890-3158-7	FS42	Solid	10/05/22 11:40	10/05/22 16:36	4
890-3158-8	FS43	Solid	10/05/22 11:45	10/05/22 16:36	4
890-3158-9	FS44	Solid	10/05/22 11:50	10/05/22 16:36	4

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503	Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	INM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2
Total Containers:		Corrected Temperature:	3.0

ANALYSIS REQUEST

Pres. Code | Parameters | Chlorides



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	Chlorides	Sample Comments
FS36	S	10/5/22	1110	4'	C	1	X	Incident #: NAPP2102831345
FS37			1115					
FS38			1120					
FS39			1125					Cost Center: 1568221001
FS40			1130					
FS41			1135					
FS42			1140					
FS43			1145					
FS44			1150					

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		10.5.22 1636	4		
3			6		
5					

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

10/12/2022

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3158-1
SDG Number: 03E1558005

Login Number: 3158
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3158-1
SDG Number: 03E1558005

Login Number: 3158
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/07/22 11:00 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3179-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/13/2022 3:57:58 PM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3179-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Job ID: 890-3179-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3179-1

Receipt
The samples were received on 10/6/2022 4:24 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.6°C

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36521 and analytical batch 880-36824 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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Client Sample ID: FS45
Lab Sample ID: 890-3179-1
Date Collected: 10/06/22 11:30
Matrix: Solid
Date Received: 10/06/22 16:24
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1260		25.2		mg/Kg			10/13/22 13:05	5

Client Sample ID: FS46
Lab Sample ID: 890-3179-2
Date Collected: 10/06/22 11:35
Matrix: Solid
Date Received: 10/06/22 16:24
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1090		24.9		mg/Kg			10/13/22 13:09	5

Client Sample ID: FS47
Lab Sample ID: 890-3179-3
Date Collected: 10/06/22 11:40
Matrix: Solid
Date Received: 10/06/22 16:24
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	898		25.0		mg/Kg			10/13/22 13:14	5

Client Sample ID: FS48
Lab Sample ID: 890-3179-4
Date Collected: 10/06/22 11:45
Matrix: Solid
Date Received: 10/06/22 16:24
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	96.5		5.05		mg/Kg			10/13/22 13:19	1

Client Sample ID: FS49
Lab Sample ID: 890-3179-5
Date Collected: 10/06/22 11:55
Matrix: Solid
Date Received: 10/06/22 16:24
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	310		5.00		mg/Kg			10/13/22 13:24	1

Client Sample ID: FS50
Lab Sample ID: 890-3179-6
Date Collected: 10/06/22 12:00
Matrix: Solid
Date Received: 10/06/22 16:24
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	66.8		5.00		mg/Kg			10/13/22 13:29	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36521/1-A
Matrix: Solid
Analysis Batch: 36824

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			10/13/22 10:23	1

Lab Sample ID: LCS 880-36521/2-A
Matrix: Solid
Analysis Batch: 36824

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	257.3		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-36521/3-A
Matrix: Solid
Analysis Batch: 36824

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	250.8		mg/Kg		100	90 - 110	3	20

Lab Sample ID: 890-3178-A-3-B MS
Matrix: Solid
Analysis Batch: 36824

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	1030	F1	1250	2459	F1	mg/Kg		114	90 - 110		

Lab Sample ID: 890-3178-A-3-C MSD
Matrix: Solid
Analysis Batch: 36824

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	1030	F1	1250	2413		mg/Kg		110	90 - 110	2	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3179-1	FS45	Soluble	Solid	DI Leach	
890-3179-2	FS46	Soluble	Solid	DI Leach	
890-3179-3	FS47	Soluble	Solid	DI Leach	
890-3179-4	FS48	Soluble	Solid	DI Leach	
890-3179-5	FS49	Soluble	Solid	DI Leach	
890-3179-6	FS50	Soluble	Solid	DI Leach	
MB 880-36521/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36521/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36521/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3178-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3178-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3179-1	FS45	Soluble	Solid	300.0	36521
890-3179-2	FS46	Soluble	Solid	300.0	36521
890-3179-3	FS47	Soluble	Solid	300.0	36521
890-3179-4	FS48	Soluble	Solid	300.0	36521
890-3179-5	FS49	Soluble	Solid	300.0	36521
890-3179-6	FS50	Soluble	Solid	300.0	36521
MB 880-36521/1-A	Method Blank	Soluble	Solid	300.0	36521
LCS 880-36521/2-A	Lab Control Sample	Soluble	Solid	300.0	36521
LCSD 880-36521/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36521
890-3178-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	36521
890-3178-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36521

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Client Sample ID: FS45
Date Collected: 10/06/22 11:30
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3179-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	36521	10/10/22 10:07	CH	EET MID
Soluble	Analysis	300.0		5			36824	10/13/22 13:05	CH	EET MID

Client Sample ID: FS46
Date Collected: 10/06/22 11:35
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3179-2
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			5.02 g	50 mL	36521	10/10/22 10:07	CH	EET MID
Soluble	Analysis	300.0		5			36824	10/13/22 13:09	CH	EET MID

Client Sample ID: FS47
Date Collected: 10/06/22 11:40
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3179-3
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			5.01 g	50 mL	36521	10/10/22 10:07	CH	EET MID
Soluble	Analysis	300.0		5			36824	10/13/22 13:14	CH	EET MID

Client Sample ID: FS48
Date Collected: 10/06/22 11:45
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3179-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36521	10/10/22 10:07	CH	EET MID
Soluble	Analysis	300.0		1			36824	10/13/22 13:19	CH	EET MID

Client Sample ID: FS49
Date Collected: 10/06/22 11:55
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3179-5
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 g	50 mL	36521	10/10/22 10:07	CH	EET MID
Soluble	Analysis	300.0		1			36824	10/13/22 13:24	CH	EET MID

Client Sample ID: FS50
Date Collected: 10/06/22 12:00
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3179-6
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 g	50 mL	36521	10/10/22 10:07	CH	EET MID
Soluble	Analysis	300.0		1			36824	10/13/22 13:29	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3179-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3179-1	FS45	Solid	10/06/22 11:30	10/06/22 16:24	4'
890-3179-2	FS46	Solid	10/06/22 11:35	10/06/22 16:24	4'
890-3179-3	FS47	Solid	10/06/22 11:40	10/06/22 16:24	4'
890-3179-4	FS48	Solid	10/06/22 11:45	10/06/22 16:24	4'
890-3179-5	FS49	Solid	10/06/22 11:55	10/06/22 16:24	4'
890-3179-6	FS50	Solid	10/06/22 12:00	10/06/22 16:24	4'

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10/13/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817·683·2503 Email:		kjennings@ensolum.com

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:

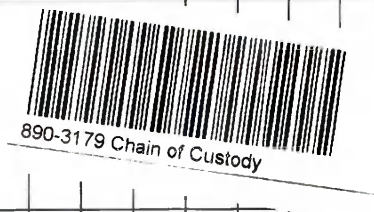
Project Name:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TM-001
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	4.8
Total Containers:		Corrected Temperature:	4.6

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	Pres. Code	Parameters: Chlorides
FS 45	S	10/6/22	1130	4'	C	1		X
FS 46			1135					
FS 47			1140					
FS 48			1145					
FS 49			1155					
FS 50			1200					



Sample Comments

Incident #:
NAPP2102831345

Cost Center:
1568221001

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		10/6/22 1424	4		
3			6		
5					

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3179-1
SDG Number: 03E1558005

Login Number: 3179
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3179-1
SDG Number: 03E1558005

Login Number: 3179
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/10/22 08:41 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3188-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/17/2022 1:17:49 PM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3188-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low 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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Job ID: 890-3188-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3188-1

Receipt
The samples were received on 10/7/2022 4:17 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.6°C

Receipt Exceptions
The following samples analyzed were received and analyzed from an unpreserved bulk soil jar: FS51 (890-3188-1), FS52 (890-3188-2), FS53 (890-3188-3), FS54 (890-3188-4), FS55 (890-3188-5), FS56 (890-3188-6), FS57 (890-3188-7), FS58 (890-3188-8), FS59 (890-3188-9), FS60 (890-3188-10), FS61 (890-3188-11), FS62 (890-3188-12), FS63 (890-3188-13), FS64 (890-3188-14), FS65 (890-3188-15), FS66 (890-3188-16), FS67 (890-3188-17), SW01 (890-3188-18) and SW02 (890-3188-19).

GC VOA
Method 8021B: The matrix spike duplicate (MSD) recoveries for preparation batch 880-36976 and analytical batch 880-37017 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-20395-A-1-A). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36976 and analytical batch 880-37017 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.

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-36688 and analytical batch 880-36637 was outside the upper control limits.

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-36688 and analytical batch 880-36637 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10.

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36531 and analytical batch 880-36746 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 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36532 and analytical batch 880-36887 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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: FS51
Lab Sample ID: 890-3188-1
Date Collected: 10/07/22 11:20
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1400		49.6		mg/Kg			10/12/22 05:33	10

Client Sample ID: FS52
Lab Sample ID: 890-3188-2
Date Collected: 10/07/22 11:25
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1400		49.9		mg/Kg			10/12/22 05:39	10

Client Sample ID: FS53
Lab Sample ID: 890-3188-3
Date Collected: 10/07/22 11:30
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	910		49.5		mg/Kg			10/12/22 05:44	10

Client Sample ID: FS54
Lab Sample ID: 890-3188-4
Date Collected: 10/07/22 11:35
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	915		24.9		mg/Kg			10/12/22 05:50	5

Client Sample ID: FS55
Lab Sample ID: 890-3188-5
Date Collected: 10/07/22 11:40
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	778		25.0		mg/Kg			10/12/22 05:56	5

Client Sample ID: FS56
Lab Sample ID: 890-3188-6
Date Collected: 10/07/22 11:45
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1100		50.0		mg/Kg			10/15/22 17:35	10

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: FS57
Lab Sample ID: 890-3188-7
Date Collected: 10/07/22 11:50
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1520		49.9		mg/Kg			10/15/22 17:48	10

Client Sample ID: FS58
Lab Sample ID: 890-3188-8
Date Collected: 10/07/22 11:55
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1480		24.8		mg/Kg			10/15/22 17:53	5

Client Sample ID: FS59
Lab Sample ID: 890-3188-9
Date Collected: 10/07/22 12:00
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1520		25.2		mg/Kg			10/15/22 17:58	5

Client Sample ID: FS60
Lab Sample ID: 890-3188-10
Date Collected: 10/07/22 12:20
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2370		49.7		mg/Kg			10/15/22 18:18	10

Client Sample ID: FS61
Lab Sample ID: 890-3188-11
Date Collected: 10/07/22 12:25
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1990		49.9		mg/Kg			10/15/22 18:23	10

Client Sample ID: FS62
Lab Sample ID: 890-3188-12
Date Collected: 10/07/22 12:30
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1750		50.0		mg/Kg			10/15/22 18:28	10

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: FS63
Lab Sample ID: 890-3188-13
Date Collected: 10/07/22 12:35
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1060		50.0		mg/Kg			10/15/22 18:33	10

Client Sample ID: FS64
Lab Sample ID: 890-3188-14
Date Collected: 10/07/22 12:40
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1400		24.9		mg/Kg			10/15/22 18:38	5

Client Sample ID: FS65
Lab Sample ID: 890-3188-15
Date Collected: 10/07/22 12:45
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1740	F1	25.0		mg/Kg			10/15/22 18:43	5

Client Sample ID: FS66
Lab Sample ID: 890-3188-16
Date Collected: 10/07/22 12:50
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1860		50.4		mg/Kg			10/15/22 18:57	10

Client Sample ID: FS67
Lab Sample ID: 890-3188-17
Date Collected: 10/07/22 12:55
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1880		49.9		mg/Kg			10/15/22 19:02	10

Client Sample ID: SW01
Lab Sample ID: 890-3188-18
Date Collected: 10/07/22 09:40
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 0 - 4

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		10/14/22 14:04	10/16/22 00:53	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/14/22 14:04	10/16/22 00:53	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/14/22 14:04	10/16/22 00:53	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/14/22 14:04	10/16/22 00:53	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/14/22 14:04	10/16/22 00:53	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/14/22 14:04	10/16/22 00:53	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: SW01

Lab Sample ID: 890-3188-18
Matrix: Solid
Date Collected: 10/07/22 09:40
Date Received: 10/07/22 16:17
Sample Depth: 0 - 4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*127*		*70 - 130*	*10/14/22 14:04*	*10/16/22 00:53*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*10/14/22 14:04*	*10/16/22 00:53*	*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			10/17/22 12:04	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			10/12/22 10:56	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 *1	49.8	mg/Kg		10/11/22 14:40	10/12/22 05:44	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/11/22 14:40	10/12/22 05:44	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/11/22 14:40	10/12/22 05:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*75*		*70 - 130*	*10/11/22 14:40*	*10/12/22 05:44*	*1*
o-Terphenyl	*82*		*70 - 130*	*10/11/22 14:40*	*10/12/22 05:44*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**852**		25.3	mg/Kg			10/15/22 19:17	5

Client Sample ID: SW02

Lab Sample ID: 890-3188-19
Matrix: Solid
Date Collected: 10/07/22 10:25
Date Received: 10/07/22 16:17
Sample Depth: 0 - 4

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		10/14/22 14:04	10/16/22 01:13	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/14/22 14:04	10/16/22 01:13	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/14/22 14:04	10/16/22 01:13	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		10/14/22 14:04	10/16/22 01:13	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/14/22 14:04	10/16/22 01:13	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		10/14/22 14:04	10/16/22 01:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*	*10/14/22 14:04*	*10/16/22 01:13*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*	*10/14/22 14:04*	*10/16/22 01:13*	*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			10/17/22 12:04	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			10/12/22 10:56	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: SW02

Lab Sample ID: 890-3188-19

Date Collected: 10/07/22 10:25
Matrix: Solid
Date Received: 10/07/22 16:17
Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *1	49.9		mg/Kg		10/11/22 14:40	10/12/22 06:05	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/11/22 14:40	10/12/22 06:05	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/11/22 14:40	10/12/22 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*81*		*70 - 130*	*10/11/22 14:40*	*10/12/22 06:05*	*1*
o-Terphenyl	*93*		*70 - 130*	*10/11/22 14:40*	*10/12/22 06:05*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**486**		24.9		mg/Kg			10/15/22 19:21	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

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)
880-20395-A-1-B MS	Matrix Spike	93	97
880-20395-A-1-C MSD	Matrix Spike Duplicate	114	88
890-3188-18	SW01	127	105
890-3188-19	SW02	122	96
LCS 880-36976/1-A	Lab Control Sample	86	93
LCSD 880-36976/2-A	Lab Control Sample Dup	84	94
MB 880-36976/5-A	Method Blank	96	88

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-20176-A-1-H MS	Matrix Spike	107	110
880-20176-A-1-I MSD	Matrix Spike Duplicate	96	100
890-3188-18	SW01	75	82
890-3188-19	SW02	81	93
LCS 880-36688/2-A	Lab Control Sample	92	113
LCSD 880-36688/3-A	Lab Control Sample Dup	103	121
MB 880-36688/1-A	Method Blank	11 S1-	11 S1-

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36976/5-A
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36976

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/14/22 14:04	10/15/22 19:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*10/14/22 14:04*	*10/15/22 19:40*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*10/14/22 14:04*	*10/15/22 19:40*	*1*

Lab Sample ID: LCS 880-36976/1-A
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36976

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1035		mg/Kg		103	70 - 130		
Toluene			0.100	0.09984		mg/Kg		100	70 - 130		
Ethylbenzene			0.100	0.08928		mg/Kg		89	70 - 130		
m-Xylene & p-Xylene			0.200	0.1795		mg/Kg		90	70 - 130		
o-Xylene			0.100	0.09130		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: LCSD 880-36976/2-A
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36976

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1082		mg/Kg		108	70 - 130	4	35
Toluene			0.100	0.1038		mg/Kg		104	70 - 130	4	35
Ethylbenzene			0.100	0.09363		mg/Kg		94	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.1920		mg/Kg		96	70 - 130	7	35
o-Xylene			0.100	0.09683		mg/Kg		97	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: 880-20395-A-1-B MS
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00202	U F2 F1	0.100	0.08441		mg/Kg		84	70 - 130		
Toluene	<0.00202	U F2 F1	0.100	0.07227		mg/Kg		72	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

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

Lab Sample ID: 880-20395-A-1-B MS
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U F1	0.100	0.05766	F1	mg/Kg		57	70 - 130
m-Xylene & p-Xylene	<0.00403	U F1	0.201	0.1558		mg/Kg		78	70 - 130
o-Xylene	<0.00202	U F1	0.100	0.07839		mg/Kg		78	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: 880-20395-A-1-C MSD
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36976

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F2 F1	0.0990	0.03276	F2 F1	mg/Kg		33	70 - 130	88	35
Toluene	<0.00202	U F2 F1	0.0990	0.03934	F2 F1	mg/Kg		40	70 - 130	59	35
Ethylbenzene	<0.00202	U F1	0.0990	0.04508	F1	mg/Kg		46	70 - 130	24	35
m-Xylene & p-Xylene	<0.00403	U F1	0.198	0.1249	F1	mg/Kg		63	70 - 130	22	35
o-Xylene	<0.00202	U F1	0.0990	0.06460	F1	mg/Kg		65	70 - 130	19	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*

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

Lab Sample ID: MB 880-36688/1-A
Matrix: Solid
Analysis Batch: 36637

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36688

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		10/11/22 14:40	10/11/22 20:40	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/11/22 14:40	10/11/22 20:40	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/11/22 14:40	10/11/22 20:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*11*	*S1-*	*70 - 130*	*10/11/22 14:40*	*10/11/22 20:40*	*1*
o-Terphenyl	*11*	*S1-*	*70 - 130*	*10/11/22 14:40*	*10/11/22 20:40*	*1*

Lab Sample ID: LCS 880-36688/2-A
Matrix: Solid
Analysis Batch: 36637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36688

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	880.8		mg/Kg		88	70 - 130
Diesel Range Organics (Over C10-C28)	1000	927.8		mg/Kg		93	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-36688/2-A
Matrix: Solid
Analysis Batch: 36637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36688

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*92*		*70 - 130*
o-Terphenyl	*113*		*70 - 130*

Lab Sample ID: LCSD 880-36688/3-A
Matrix: Solid
Analysis Batch: 36637

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36688

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1196	*1	mg/Kg		120	70 - 130	30	20
Diesel Range Organics (Over C10-C28)			1000	992.8		mg/Kg		99	70 - 130	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*121*		*70 - 130*

Lab Sample ID: 880-20176-A-1-H MS
Matrix: Solid
Analysis Batch: 36637

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36688

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 *1	999	888.3		mg/Kg		89	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	999	1047		mg/Kg		105	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*107*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: 880-20176-A-1-I MSD
Matrix: Solid
Analysis Batch: 36637

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36688

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 *1	997	1066		mg/Kg		107	70 - 130	18	20
Diesel Range Organics (Over C10-C28)	<49.8	U	997	950.8		mg/Kg		95	70 - 130	10	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*96*		*70 - 130*
o-Terphenyl	*100*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36531/1-A
Matrix: Solid
Analysis Batch: 36746

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			10/12/22 03:11	1

Lab Sample ID: LCS 880-36531/2-A
Matrix: Solid
Analysis Batch: 36746

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	260.8		mg/Kg		104	90 - 110		

Lab Sample ID: LCSD 880-36531/3-A
Matrix: Solid
Analysis Batch: 36746

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	259.6		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 890-3183-A-9-B MS
Matrix: Solid
Analysis Batch: 36746

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	90.6	F1	252	349.7		mg/Kg		103	90 - 110		

Lab Sample ID: 890-3183-A-9-C MSD
Matrix: Solid
Analysis Batch: 36746

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	90.6	F1	252	381.2	F1	mg/Kg		115	90 - 110	9	20

Lab Sample ID: MB 880-36532/1-A
Matrix: Solid
Analysis Batch: 36887

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			10/15/22 17:06	1

Lab Sample ID: LCS 880-36532/2-A
Matrix: Solid
Analysis Batch: 36887

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	261.4		mg/Kg		105	90 - 110		

Lab Sample ID: LCSD 880-36532/3-A
Matrix: Solid
Analysis Batch: 36887

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	262.0		mg/Kg		105	90 - 110	0	20

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-3188-15 MS
Matrix: Solid
Analysis Batch: 36887

Client Sample ID: FS65
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1740	F1	1250	3163	F1	mg/Kg		114	90 - 110		

Lab Sample ID: 890-3188-15 MSD
Matrix: Solid
Analysis Batch: 36887

Client Sample ID: FS65
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1740	F1	1250	3166	F1	mg/Kg		114	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

GC VOA

Prep Batch: 36976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-18	SW01	Total/NA	Solid	5035	
890-3188-19	SW02	Total/NA	Solid	5035	
MB 880-36976/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36976/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36976/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20395-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-20395-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-18	SW01	Total/NA	Solid	8021B	36976
890-3188-19	SW02	Total/NA	Solid	8021B	36976
MB 880-36976/5-A	Method Blank	Total/NA	Solid	8021B	36976
LCS 880-36976/1-A	Lab Control Sample	Total/NA	Solid	8021B	36976
LCSD 880-36976/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36976
880-20395-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	36976
880-20395-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36976

Analysis Batch: 37148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-18	SW01	Total/NA	Solid	Total BTEX	
890-3188-19	SW02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 36637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-18	SW01	Total/NA	Solid	8015B NM	36688
890-3188-19	SW02	Total/NA	Solid	8015B NM	36688
MB 880-36688/1-A	Method Blank	Total/NA	Solid	8015B NM	36688
LCS 880-36688/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36688
LCSD 880-36688/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36688
880-20176-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	36688
880-20176-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36688

Prep Batch: 36688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-18	SW01	Total/NA	Solid	8015NM Prep	
890-3188-19	SW02	Total/NA	Solid	8015NM Prep	
MB 880-36688/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36688/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36688/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20176-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20176-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-18	SW01	Total/NA	Solid	8015 NM	
890-3188-19	SW02	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

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Leach Batch: 36531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-1	FS51	Soluble	Solid	DI Leach	
890-3188-2	FS52	Soluble	Solid	DI Leach	
890-3188-3	FS53	Soluble	Solid	DI Leach	
890-3188-4	FS54	Soluble	Solid	DI Leach	
890-3188-5	FS55	Soluble	Solid	DI Leach	
MB 880-36531/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36531/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36531/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3183-A-9-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3183-A-9-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Leach Batch: 36532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-6	FS56	Soluble	Solid	DI Leach	
890-3188-7	FS57	Soluble	Solid	DI Leach	
890-3188-8	FS58	Soluble	Solid	DI Leach	
890-3188-9	FS59	Soluble	Solid	DI Leach	
890-3188-10	FS60	Soluble	Solid	DI Leach	
890-3188-11	FS61	Soluble	Solid	DI Leach	
890-3188-12	FS62	Soluble	Solid	DI Leach	
890-3188-13	FS63	Soluble	Solid	DI Leach	
890-3188-14	FS64	Soluble	Solid	DI Leach	
890-3188-15	FS65	Soluble	Solid	DI Leach	
890-3188-16	FS66	Soluble	Solid	DI Leach	
890-3188-17	FS67	Soluble	Solid	DI Leach	
890-3188-18	SW01	Soluble	Solid	DI Leach	
890-3188-19	SW02	Soluble	Solid	DI Leach	
MB 880-36532/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36532/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36532/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3188-15 MS	FS65	Soluble	Solid	DI Leach	
890-3188-15 MSD	FS65	Soluble	Solid	DI Leach	

Analysis Batch: 36746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-1	FS51	Soluble	Solid	300.0	36531
890-3188-2	FS52	Soluble	Solid	300.0	36531
890-3188-3	FS53	Soluble	Solid	300.0	36531
890-3188-4	FS54	Soluble	Solid	300.0	36531
890-3188-5	FS55	Soluble	Solid	300.0	36531
MB 880-36531/1-A	Method Blank	Soluble	Solid	300.0	36531
LCS 880-36531/2-A	Lab Control Sample	Soluble	Solid	300.0	36531
LCSD 880-36531/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36531
890-3183-A-9-B MS	Matrix Spike	Soluble	Solid	300.0	36531
890-3183-A-9-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36531

Analysis Batch: 36887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-6	FS56	Soluble	Solid	300.0	36532
890-3188-7	FS57	Soluble	Solid	300.0	36532
890-3188-8	FS58	Soluble	Solid	300.0	36532

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

HPLC/IC (Continued)

Analysis Batch: 36887 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3188-9	FS59	Soluble	Solid	300.0	36532
890-3188-10	FS60	Soluble	Solid	300.0	36532
890-3188-11	FS61	Soluble	Solid	300.0	36532
890-3188-12	FS62	Soluble	Solid	300.0	36532
890-3188-13	FS63	Soluble	Solid	300.0	36532
890-3188-14	FS64	Soluble	Solid	300.0	36532
890-3188-15	FS65	Soluble	Solid	300.0	36532
890-3188-16	FS66	Soluble	Solid	300.0	36532
890-3188-17	FS67	Soluble	Solid	300.0	36532
890-3188-18	SW01	Soluble	Solid	300.0	36532
890-3188-19	SW02	Soluble	Solid	300.0	36532
MB 880-36532/1-A	Method Blank	Soluble	Solid	300.0	36532
LCS 880-36532/2-A	Lab Control Sample	Soluble	Solid	300.0	36532
LCSD 880-36532/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36532
890-3188-15 MS	FS65	Soluble	Solid	300.0	36532
890-3188-15 MSD	FS65	Soluble	Solid	300.0	36532

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: FS51
Date Collected: 10/07/22 11:20
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-1
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			5.04 g	50 mL	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		10			36746	10/12/22 05:33	CH	EET MID

Client Sample ID: FS52
Date Collected: 10/07/22 11:25
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-2
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			5.01 g	50 mL	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		10			36746	10/12/22 05:39	CH	EET MID

Client Sample ID: FS53
Date Collected: 10/07/22 11:30
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-3
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			5.05 g	50 mL	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		10			36746	10/12/22 05:44	CH	EET MID

Client Sample ID: FS54
Date Collected: 10/07/22 11:35
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-4
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	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		5			36746	10/12/22 05:50	CH	EET MID

Client Sample ID: FS55
Date Collected: 10/07/22 11:40
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-5
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 g	50 mL	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		5			36746	10/12/22 05:56	CH	EET MID

Client Sample ID: FS56
Date Collected: 10/07/22 11:45
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-6
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 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 17:35	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: FS57
Date Collected: 10/07/22 11:50
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-7
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			5.01 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 17:48	CH	EET MID

Client Sample ID: FS58
Date Collected: 10/07/22 11:55
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-8
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			5.05 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		5			36887	10/15/22 17:53	CH	EET MID

Client Sample ID: FS59
Date Collected: 10/07/22 12:00
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		5			36887	10/15/22 17:58	CH	EET MID

Client Sample ID: FS60
Date Collected: 10/07/22 12:20
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-10
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	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 18:18	CH	EET MID

Client Sample ID: FS61
Date Collected: 10/07/22 12:25
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-11
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			5.01 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 18:23	CH	EET MID

Client Sample ID: FS62
Date Collected: 10/07/22 12:30
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-12
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 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 18:28	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: FS63
Date Collected: 10/07/22 12:35
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-13
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 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 18:33	CH	EET MID

Client Sample ID: FS64
Date Collected: 10/07/22 12:40
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-14
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			5.02 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		5			36887	10/15/22 18:38	CH	EET MID

Client Sample ID: FS65
Date Collected: 10/07/22 12:45
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-15
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 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		5			36887	10/15/22 18:43	CH	EET MID

Client Sample ID: FS66
Date Collected: 10/07/22 12:50
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 18:57	CH	EET MID

Client Sample ID: FS67
Date Collected: 10/07/22 12:55
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-17
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			5.01 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		10			36887	10/15/22 19:02	CH	EET MID

Client Sample ID: SW01
Date Collected: 10/07/22 09:40
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-18
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	36976	10/14/22 14:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37017	10/16/22 00:53	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37148	10/17/22 12:04	SM	EET MID
Total/NA	Analysis	8015 NM		1			36750	10/12/22 10:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	36688	10/11/22 14:40	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36637	10/12/22 05:44	SM	EET MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Client Sample ID: SW01
Date Collected: 10/07/22 09:40
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-18
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		5			36887	10/15/22 19:17	CH	EET MID

Client Sample ID: SW02
Date Collected: 10/07/22 10:25
Date Received: 10/07/22 16:17

Lab Sample ID: 890-3188-19
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	36976	10/14/22 14:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37017	10/16/22 01:13	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37148	10/17/22 12:04	SM	EET MID
Total/NA	Analysis	8015 NM		1			36750	10/12/22 10:56	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36688	10/11/22 14:40	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36637	10/12/22 06:05	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	36532	10/10/22 10:12	CH	EET MID
Soluble	Analysis	300.0		5			36887	10/15/22 19:21	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3188-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3188-1	FS51	Solid	10/07/22 11:20	10/07/22 16:17	4
890-3188-2	FS52	Solid	10/07/22 11:25	10/07/22 16:17	4
890-3188-3	FS53	Solid	10/07/22 11:30	10/07/22 16:17	4
890-3188-4	FS54	Solid	10/07/22 11:35	10/07/22 16:17	4
890-3188-5	FS55	Solid	10/07/22 11:40	10/07/22 16:17	4
890-3188-6	FS56	Solid	10/07/22 11:45	10/07/22 16:17	4
890-3188-7	FS57	Solid	10/07/22 11:50	10/07/22 16:17	4
890-3188-8	FS58	Solid	10/07/22 11:55	10/07/22 16:17	4
890-3188-9	FS59	Solid	10/07/22 12:00	10/07/22 16:17	4
890-3188-10	FS60	Solid	10/07/22 12:20	10/07/22 16:17	4
890-3188-11	FS61	Solid	10/07/22 12:25	10/07/22 16:17	4
890-3188-12	FS62	Solid	10/07/22 12:30	10/07/22 16:17	4
890-3188-13	FS63	Solid	10/07/22 12:35	10/07/22 16:17	4
890-3188-14	FS64	Solid	10/07/22 12:40	10/07/22 16:17	4
890-3188-15	FS65	Solid	10/07/22 12:45	10/07/22 16:17	4
890-3188-16	FS66	Solid	10/07/22 12:50	10/07/22 16:17	4
890-3188-17	FS67	Solid	10/07/22 12:55	10/07/22 16:17	4
890-3188-18	SW01	Solid	10/07/22 09:40	10/07/22 16:17	0 - 4
890-3188-19	SW02	Solid	10/07/22 10:25	10/07/22 16:17	0 - 4

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

Work Order No: _____

www.xenco.com Page 1 of 2

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817 683 2503	Email:	kjennings@ensolum.com

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:

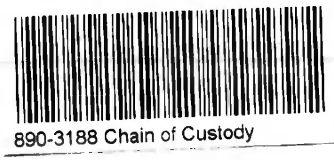
Project Name:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID:	TUM007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	2.8	
Total Containers:		Corrected Temperature:	2.6	

ANALYSIS REQUEST

Pres. Code

Parameters: Chlorides



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	Chlorides	Sample Comments
FS51	S	10/7/22	1120	4'	C	1	X	Incident #: NAPP2102831345
FS52			1125					
FS53			1130					
FS54			1135					Cost Center: 1568221001
FS55			1140					
FS56			1145					
FS57			1150					
FS58			1155					
FS59			1200					
FS60			1220					

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			2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

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Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503	Email:	Kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567103, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:		
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
$Na_2S_2O_3$: NaSO$_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Chlorides	BTEX	TPH	Sample Comments
FS61	S	10/7/22	1225	4'	C	1		X			Incident #: NAPP2202831345
FS62			1230								
FS63			1235								
FS64			1240								Cost Center: 1568221001
FS65			1245								
FS66			1250								
FS67			1255								
SW01			0940	0-4					X	X	
SW03			1025	0-4					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		10.7.22	2		
3			4		
5			6		

Revised Date 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM
10/17/2022
Page 27 of 29

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3188-1
SDG Number: 03E1558005

Login Number: 3188
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3188-1
SDG Number: 03E1558005

Login Number: 3188
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/11/22 10:26 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3193-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vador 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/17/2022 11:37:48 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Laboratory Job ID: 890-3193-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Job ID: 890-3193-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3193-1

Receipt
The samples were received on 10/10/2022 4:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: FS78 (890-3193-1), FS79 (890-3193-2), FS80 (890-3193-3), FS81 (890-3193-4), FS82 (890-3193-5), FS83 (890-3193-6), FS84 (890-3193-7), FS85 (890-3193-8), SW10 (890-3193-9), SW11 (890-3193-10), FS68 (890-3193-11), FS69 (890-3193-12), FS70 (890-3193-13), FS71 (890-3193-14), FS72 (890-3193-15), FS73 (890-3193-16), FS74 (890-3193-17), FS75 (890-3193-18), FS76 (890-3193-19) and FS77 (890-3193-20).

GC VOA
Method 8021B: The matrix spike duplicate (MSD) recoveries for preparation batch 880-36976 and analytical batch 880-37017 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-20395-A-1-A). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36976 and analytical batch 880-37017 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.

GC Semi VOA
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: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS78
Lab Sample ID: 890-3193-1
Date Collected: 10/10/22 11:35
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	765		24.8		mg/Kg			10/14/22 19:10	5

Client Sample ID: FS79
Lab Sample ID: 890-3193-2
Date Collected: 10/10/22 11:40
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	181		25.3		mg/Kg			10/14/22 19:25	5

Client Sample ID: FS80
Lab Sample ID: 890-3193-3
Date Collected: 10/10/22 11:45
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	238		4.97		mg/Kg			10/14/22 19:29	1

Client Sample ID: FS81
Lab Sample ID: 890-3193-4
Date Collected: 10/10/22 11:50
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	940		49.8		mg/Kg			10/14/22 19:34	10

Client Sample ID: FS82
Lab Sample ID: 890-3193-5
Date Collected: 10/10/22 11:55
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1000		50.0		mg/Kg			10/14/22 19:39	10

Client Sample ID: FS83
Lab Sample ID: 890-3193-6
Date Collected: 10/10/22 10:00
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1410		50.0		mg/Kg			10/14/22 19:54	10

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS84

Lab Sample ID: 890-3193-7
Matrix: Solid
Date Collected: 10/10/22 10:10
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1360		49.9		mg/Kg			10/14/22 19:59	10

Client Sample ID: FS85

Lab Sample ID: 890-3193-8
Matrix: Solid
Date Collected: 10/10/22 10:15
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1330		50.2		mg/Kg			10/14/22 20:04	10

Client Sample ID: SW10

Lab Sample ID: 890-3193-9
Matrix: Solid
Date Collected: 10/10/22 13:40
Date Received: 10/10/22 16:30
Sample Depth: 0-4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	979		5.02		mg/Kg			10/14/22 20:08	1

Client Sample ID: SW11

Lab Sample ID: 890-3193-10
Matrix: Solid
Date Collected: 10/10/22 13:45
Date Received: 10/10/22 16:30
Sample Depth: 0-4'

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		10/14/22 14:04	10/16/22 02:36	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/16/22 02:36	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/16/22 02:36	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/14/22 14:04	10/16/22 02:36	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/16/22 02:36	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/14/22 14:04	10/16/22 02:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*10/14/22 14:04*	*10/16/22 02:36*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*10/14/22 14:04*	*10/16/22 02:36*	*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			10/17/22 12:04	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	466		50.0		mg/Kg			10/13/22 11:22	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		10/12/22 09:02	10/12/22 17:57	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: SW11
Lab Sample ID: 890-3193-10
Date Collected: 10/10/22 13:45
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 0-4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	466		50.0		mg/Kg		10/12/22 09:02	10/12/22 17:57	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/12/22 09:02	10/12/22 17:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*108*		*70 - 130*	*10/12/22 09:02*	*10/12/22 17:57*	*1*
o-Terphenyl	*103*		*70 - 130*	*10/12/22 09:02*	*10/12/22 17:57*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	706		5.02		mg/Kg			10/14/22 20:13	1

Client Sample ID: FS68
Lab Sample ID: 890-3193-11
Date Collected: 10/10/22 10:45
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1170		49.5		mg/Kg			10/14/22 20:18	10

Client Sample ID: FS69
Lab Sample ID: 890-3193-12
Date Collected: 10/10/22 10:50
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	682		49.7		mg/Kg			10/14/22 20:33	10

Client Sample ID: FS70
Lab Sample ID: 890-3193-13
Date Collected: 10/10/22 10:55
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1060		49.7		mg/Kg			10/14/22 20:37	10

Client Sample ID: FS71
Lab Sample ID: 890-3193-14
Date Collected: 10/10/22 11:00
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1220		50.4		mg/Kg			10/14/22 20:52	10

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS72
Lab Sample ID: 890-3193-15
Date Collected: 10/10/22 11:05
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	841		49.8		mg/Kg			10/14/22 20:57	10

Client Sample ID: FS73
Lab Sample ID: 890-3193-16
Date Collected: 10/10/22 11:10
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	990		49.9		mg/Kg			10/14/22 21:02	10

Client Sample ID: FS74
Lab Sample ID: 890-3193-17
Date Collected: 10/10/22 11:15
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1020		50.5		mg/Kg			10/14/22 21:07	10

Client Sample ID: FS75
Lab Sample ID: 890-3193-18
Date Collected: 10/10/22 11:20
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	952		50.2		mg/Kg			10/14/22 21:11	10

Client Sample ID: FS76
Lab Sample ID: 890-3193-19
Date Collected: 10/10/22 11:25
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1070		49.5		mg/Kg			10/14/22 21:16	10

Client Sample ID: FS77
Lab Sample ID: 890-3193-20
Date Collected: 10/10/22 11:30
Matrix: Solid
Date Received: 10/10/22 16:30
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1100		50.4		mg/Kg			10/14/22 21:21	10

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

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)
880-20395-A-1-B MS	Matrix Spike	93	97
880-20395-A-1-C MSD	Matrix Spike Duplicate	114	88
890-3193-10	SW11	117	98
LCS 880-36976/1-A	Lab Control Sample	86	93
LCSD 880-36976/2-A	Lab Control Sample Dup	84	94
MB 880-36976/5-A	Method Blank	96	88

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)
880-20128-A-19-C MS	Matrix Spike	89	83
880-20128-A-19-D MSD	Matrix Spike Duplicate	92	82
890-3193-10	SW11	108	103
LCS 880-36719/2-A	Lab Control Sample	109	114
LCSD 880-36719/3-A	Lab Control Sample Dup	110	114
MB 880-36719/1-A	Method Blank	105	103

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36976/5-A
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36976

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:04	10/15/22 19:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/14/22 14:04	10/15/22 19:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*10/14/22 14:04*	*10/15/22 19:40*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*	*10/14/22 14:04*	*10/15/22 19:40*	*1*

Lab Sample ID: LCS 880-36976/1-A
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36976

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1035		mg/Kg		103	70 - 130		
Toluene			0.100	0.09984		mg/Kg		100	70 - 130		
Ethylbenzene			0.100	0.08928		mg/Kg		89	70 - 130		
m-Xylene & p-Xylene			0.200	0.1795		mg/Kg		90	70 - 130		
o-Xylene			0.100	0.09130		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: LCSD 880-36976/2-A
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36976

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1082		mg/Kg		108	70 - 130	4	35
Toluene			0.100	0.1038		mg/Kg		104	70 - 130	4	35
Ethylbenzene			0.100	0.09363		mg/Kg		94	70 - 130	5	35
m-Xylene & p-Xylene			0.200	0.1920		mg/Kg		96	70 - 130	7	35
o-Xylene			0.100	0.09683		mg/Kg		97	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: 880-20395-A-1-B MS
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00202	U F2 F1	0.100	0.08441		mg/Kg		84	70 - 130		
Toluene	<0.00202	U F2 F1	0.100	0.07227		mg/Kg		72	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

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

Lab Sample ID: 880-20395-A-1-B MS
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U F1	0.100	0.05766	F1	mg/Kg		57	70 - 130
m-Xylene & p-Xylene	<0.00403	U F1	0.201	0.1558		mg/Kg		78	70 - 130
o-Xylene	<0.00202	U F1	0.100	0.07839		mg/Kg		78	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*

Lab Sample ID: 880-20395-A-1-C MSD
Matrix: Solid
Analysis Batch: 37017

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36976

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F2 F1	0.0990	0.03276	F2 F1	mg/Kg		33	70 - 130	88	35
Toluene	<0.00202	U F2 F1	0.0990	0.03934	F2 F1	mg/Kg		40	70 - 130	59	35
Ethylbenzene	<0.00202	U F1	0.0990	0.04508	F1	mg/Kg		46	70 - 130	24	35
m-Xylene & p-Xylene	<0.00403	U F1	0.198	0.1249	F1	mg/Kg		63	70 - 130	22	35
o-Xylene	<0.00202	U F1	0.0990	0.06460	F1	mg/Kg		65	70 - 130	19	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*70 - 130*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*

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

Lab Sample ID: MB 880-36719/1-A
Matrix: Solid
Analysis Batch: 36707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36719

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		10/12/22 09:02	10/12/22 10:59	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/12/22 09:02	10/12/22 10:59	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/12/22 09:02	10/12/22 10:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*10/12/22 09:02*	*10/12/22 10:59*	*1*
o-Terphenyl	*103*		*70 - 130*	*10/12/22 09:02*	*10/12/22 10:59*	*1*

Lab Sample ID: LCS 880-36719/2-A
Matrix: Solid
Analysis Batch: 36707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36719

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	831.3		mg/Kg		83	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1153		mg/Kg		115	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-36719/2-A
Matrix: Solid
Analysis Batch: 36707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36719

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	109		70 - 130
o-Terphenyl	114		70 - 130

Lab Sample ID: LCSD 880-36719/3-A
Matrix: Solid
Analysis Batch: 36707

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36719

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	834.3		mg/Kg		83	70 - 130	0	20
Diesel Range Organics (Over C10-C28)			1000	1160		mg/Kg		116	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	110		70 - 130
o-Terphenyl	114		70 - 130

Lab Sample ID: 880-20128-A-19-C MS
Matrix: Solid
Analysis Batch: 36707

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36719

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	998	858.3		mg/Kg		86	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1010		mg/Kg		101	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	89		70 - 130
o-Terphenyl	83		70 - 130

Lab Sample ID: 880-20128-A-19-D MSD
Matrix: Solid
Analysis Batch: 36707

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36719

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	998	857.3		mg/Kg		86	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1023		mg/Kg		103	70 - 130	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	92		70 - 130
o-Terphenyl	82		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36772/1-A
Matrix: Solid
Analysis Batch: 36947

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			10/14/22 18:55	1

Lab Sample ID: LCS 880-36772/2-A
Matrix: Solid
Analysis Batch: 36947

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	262.0		mg/Kg		105	90 - 110		

Lab Sample ID: LCSD 880-36772/3-A
Matrix: Solid
Analysis Batch: 36947

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	263.6		mg/Kg		105	90 - 110	1	20

Lab Sample ID: 890-3193-1 MS
Matrix: Solid
Analysis Batch: 36947

Client Sample ID: FS78
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	765		1240	2078		mg/Kg		106	90 - 110		

Lab Sample ID: 890-3193-1 MSD
Matrix: Solid
Analysis Batch: 36947

Client Sample ID: FS78
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	765		1240	2082		mg/Kg		106	90 - 110	0	20

Lab Sample ID: 890-3193-11 MS
Matrix: Solid
Analysis Batch: 36947

Client Sample ID: FS68
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1170		2480	3767		mg/Kg		105	90 - 110		

Lab Sample ID: 890-3193-11 MSD
Matrix: Solid
Analysis Batch: 36947

Client Sample ID: FS68
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1170		2480	3768		mg/Kg		105	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

GC VOA

Prep Batch: 36976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-10	SW11	Total/NA	Solid	5035	
MB 880-36976/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36976/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36976/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20395-A-1-B MS	Matrix Spike	Total/NA	Solid	5035	
880-20395-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-10	SW11	Total/NA	Solid	8021B	36976
MB 880-36976/5-A	Method Blank	Total/NA	Solid	8021B	36976
LCS 880-36976/1-A	Lab Control Sample	Total/NA	Solid	8021B	36976
LCSD 880-36976/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36976
880-20395-A-1-B MS	Matrix Spike	Total/NA	Solid	8021B	36976
880-20395-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36976

Analysis Batch: 37150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-10	SW11	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 36707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-10	SW11	Total/NA	Solid	8015B NM	36719
MB 880-36719/1-A	Method Blank	Total/NA	Solid	8015B NM	36719
LCS 880-36719/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36719
LCSD 880-36719/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36719
880-20128-A-19-C MS	Matrix Spike	Total/NA	Solid	8015B NM	36719
880-20128-A-19-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36719

Prep Batch: 36719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-10	SW11	Total/NA	Solid	8015NM Prep	
MB 880-36719/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36719/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36719/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20128-A-19-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20128-A-19-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36851

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-10	SW11	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 36772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-1	FS78	Soluble	Solid	DI Leach	
890-3193-2	FS79	Soluble	Solid	DI Leach	
890-3193-3	FS80	Soluble	Solid	DI Leach	
890-3193-4	FS81	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

HPLC/IC (Continued)

Leach Batch: 36772 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-5	FS82	Soluble	Solid	DI Leach	
890-3193-6	FS83	Soluble	Solid	DI Leach	
890-3193-7	FS84	Soluble	Solid	DI Leach	
890-3193-8	FS85	Soluble	Solid	DI Leach	
890-3193-9	SW10	Soluble	Solid	DI Leach	
890-3193-10	SW11	Soluble	Solid	DI Leach	
890-3193-11	FS68	Soluble	Solid	DI Leach	
890-3193-12	FS69	Soluble	Solid	DI Leach	
890-3193-13	FS70	Soluble	Solid	DI Leach	
890-3193-14	FS71	Soluble	Solid	DI Leach	
890-3193-15	FS72	Soluble	Solid	DI Leach	
890-3193-16	FS73	Soluble	Solid	DI Leach	
890-3193-17	FS74	Soluble	Solid	DI Leach	
890-3193-18	FS75	Soluble	Solid	DI Leach	
890-3193-19	FS76	Soluble	Solid	DI Leach	
890-3193-20	FS77	Soluble	Solid	DI Leach	
MB 880-36772/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36772/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36772/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3193-1 MS	FS78	Soluble	Solid	DI Leach	
890-3193-1 MSD	FS78	Soluble	Solid	DI Leach	
890-3193-11 MS	FS68	Soluble	Solid	DI Leach	
890-3193-11 MSD	FS68	Soluble	Solid	DI Leach	

Analysis Batch: 36947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-1	FS78	Soluble	Solid	300.0	36772
890-3193-2	FS79	Soluble	Solid	300.0	36772
890-3193-3	FS80	Soluble	Solid	300.0	36772
890-3193-4	FS81	Soluble	Solid	300.0	36772
890-3193-5	FS82	Soluble	Solid	300.0	36772
890-3193-6	FS83	Soluble	Solid	300.0	36772
890-3193-7	FS84	Soluble	Solid	300.0	36772
890-3193-8	FS85	Soluble	Solid	300.0	36772
890-3193-9	SW10	Soluble	Solid	300.0	36772
890-3193-10	SW11	Soluble	Solid	300.0	36772
890-3193-11	FS68	Soluble	Solid	300.0	36772
890-3193-12	FS69	Soluble	Solid	300.0	36772
890-3193-13	FS70	Soluble	Solid	300.0	36772
890-3193-14	FS71	Soluble	Solid	300.0	36772
890-3193-15	FS72	Soluble	Solid	300.0	36772
890-3193-16	FS73	Soluble	Solid	300.0	36772
890-3193-17	FS74	Soluble	Solid	300.0	36772
890-3193-18	FS75	Soluble	Solid	300.0	36772
890-3193-19	FS76	Soluble	Solid	300.0	36772
890-3193-20	FS77	Soluble	Solid	300.0	36772
MB 880-36772/1-A	Method Blank	Soluble	Solid	300.0	36772
LCS 880-36772/2-A	Lab Control Sample	Soluble	Solid	300.0	36772
LCSD 880-36772/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36772
890-3193-1 MS	FS78	Soluble	Solid	300.0	36772
890-3193-1 MSD	FS78	Soluble	Solid	300.0	36772

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

HPLC/IC (Continued)

Analysis Batch: 36947 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3193-11 MS	FS68	Soluble	Solid	300.0	36772
890-3193-11 MSD	FS68	Soluble	Solid	300.0	36772

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS78
Date Collected: 10/10/22 11:35
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-1
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			5.05 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		5			36947	10/14/22 19:10	CH	EET MID

Client Sample ID: FS79
Date Collected: 10/10/22 11:40
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		5			36947	10/14/22 19:25	CH	EET MID

Client Sample ID: FS80
Date Collected: 10/10/22 11:45
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-3
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	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		1			36947	10/14/22 19:29	CH	EET MID

Client Sample ID: FS81
Date Collected: 10/10/22 11:50
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-4
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			5.02 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 19:34	CH	EET MID

Client Sample ID: FS82
Date Collected: 10/10/22 11:55
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-5
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 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 19:39	CH	EET MID

Client Sample ID: FS83
Date Collected: 10/10/22 10:00
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-6
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 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 19:54	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS84
Date Collected: 10/10/22 10:10
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-7
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			5.01 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 19:59	CH	EET MID

Client Sample ID: FS85
Date Collected: 10/10/22 10:15
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 20:04	CH	EET MID

Client Sample ID: SW10
Date Collected: 10/10/22 13:40
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		1			36947	10/14/22 20:08	CH	EET MID

Client Sample ID: SW11
Date Collected: 10/10/22 13:45
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36976	10/14/22 14:04	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37017	10/16/22 02:36	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37150	10/17/22 12:04	SM	EET MID
Total/NA	Analysis	8015 NM		1			36851	10/13/22 11:22	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	36719	10/12/22 09:02	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36707	10/12/22 17:57	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		1			36947	10/14/22 20:13	CH	EET MID

Client Sample ID: FS68
Date Collected: 10/10/22 10:45
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-11
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			5.05 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 20:18	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS69
Date Collected: 10/10/22 10:50
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-12
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	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 20:33	CH	EET MID

Client Sample ID: FS70
Date Collected: 10/10/22 10:55
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-13
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	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 20:37	CH	EET MID

Client Sample ID: FS71
Date Collected: 10/10/22 11:00
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 20:52	CH	EET MID

Client Sample ID: FS72
Date Collected: 10/10/22 11:05
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-15
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			5.02 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 20:57	CH	EET MID

Client Sample ID: FS73
Date Collected: 10/10/22 11:10
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-16
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			5.01 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 21:02	CH	EET MID

Client Sample ID: FS74
Date Collected: 10/10/22 11:15
Date Received: 10/10/22 16:30

Lab Sample ID: 890-3193-17
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 21:07	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Client Sample ID: FS75

Lab Sample ID: 890-3193-18

Date Collected: 10/10/22 11:20
Matrix: Solid
Date Received: 10/10/22 16:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 21:11	CH	EET MID

Client Sample ID: FS76

Lab Sample ID: 890-3193-19

Date Collected: 10/10/22 11:25
Matrix: Solid
Date Received: 10/10/22 16:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.05 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 21:16	CH	EET MID

Client Sample ID: FS77

Lab Sample ID: 890-3193-20

Date Collected: 10/10/22 11:30
Matrix: Solid
Date Received: 10/10/22 16:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	36772	10/12/22 15:51	KS	EET MID
Soluble	Analysis	300.0		10			36947	10/14/22 21:21	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vador 100H

Job ID: 890-3193-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3193-1	FS78	Solid	10/10/22 11:35	10/10/22 16:30	4'
890-3193-2	FS79	Solid	10/10/22 11:40	10/10/22 16:30	4'
890-3193-3	FS80	Solid	10/10/22 11:45	10/10/22 16:30	4'
890-3193-4	FS81	Solid	10/10/22 11:50	10/10/22 16:30	4'
890-3193-5	FS82	Solid	10/10/22 11:55	10/10/22 16:30	4'
890-3193-6	FS83	Solid	10/10/22 10:00	10/10/22 16:30	4'
890-3193-7	FS84	Solid	10/10/22 10:10	10/10/22 16:30	4'
890-3193-8	FS85	Solid	10/10/22 10:15	10/10/22 16:30	4'
890-3193-9	SW10	Solid	10/10/22 13:40	10/10/22 16:30	0-4'
890-3193-10	SW11	Solid	10/10/22 13:45	10/10/22 16:30	0-4'
890-3193-11	FS68	Solid	10/10/22 10:45	10/10/22 16:30	4'
890-3193-12	FS69	Solid	10/10/22 10:50	10/10/22 16:30	4'
890-3193-13	FS70	Solid	10/10/22 10:55	10/10/22 16:30	4'
890-3193-14	FS71	Solid	10/10/22 11:00	10/10/22 16:30	4'
890-3193-15	FS72	Solid	10/10/22 11:05	10/10/22 16:30	4'
890-3193-16	FS73	Solid	10/10/22 11:10	10/10/22 16:30	4'
890-3193-17	FS74	Solid	10/10/22 11:15	10/10/22 16:30	4'
890-3193-18	FS75	Solid	10/10/22 11:20	10/10/22 16:30	4'
890-3193-19	FS76	Solid	10/10/22 11:25	10/10/22 16:30	4'
890-3193-20	FS77	Solid	10/10/22 11:30	10/10/22 16:30	4'

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 2 of 2

Project Manager:	Katei Jennings	Bill to: (if different)	Garret Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	~~BFU29W Vadar 100H~~	Turn Around	☑ Routine ☐ Rush
Project Number:	1BE1554005	Due Date:	
Project Location:	32.3167, 103.779		starts the day received by the lab, if received by 4:30pm
Sampler's Name:	Juliana Falcomata		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TAM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2
Total Containers:		Corrected Temperature:	3.0

ANALYSIS REQUEST

Pres. Code

Parameters: chlorides; TPH; BTEX

890-3193 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	chlorides	TPH	BTEX
FS78	S	10-10-22	1185	4'	C	1	✓		
FS79	S	10-10-22	1140	4'	C	1	✓		
FS80	S	10-10-22	1145	4'	C	1	✓		
FS81	S	10-10-22	1150	4'	C	1	✓		
FS82	S	10-10-22	1155	4'	C	1	✓		
FS83	S	10-10-22	1000	4'	C	1	✓		
FS84	S	10-10-22	1010	4'	C	1	✓		
FS85	S	10-10-22	1015	4'	C	1	✓		
SW10	S	10-10-22	1340	0-4'	C	1	✓	✓	✓
SW11	S	10-10-22	1345	0-4'	C	1	✓		

Sample Comments

Incident #: NAPP2102831345

Cost Center: 1568221001

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	Amanda Estep	10/10/22 1630	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 2

Project Manager:	Khalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Julianna Falcomata		
PO #:			

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
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: Chlorides	Sample Comments
FS68	S	10-10-22	1045	4'	C	1	✓	Incident #: nAPP2102831345
FS69	S	10-10-22	1050	4'	C	1	✓	
FS70	S	10-10-22	1055	4'	C	1	✓	Cost Center: 1568221001
FS71	S	10-10-22	1100	4'	C	1	✓	
FS72	S	10-10-22	1105	4'	C	1	✓	
FS73	S	10-10-22	1110	4'	C	1	✓	
FS74	S	10-10-22	1115	4'	C	1	✓	
FS75	S	10-10-22	1120	4'	C	1	✓	
FS76	S	10-10-22	1125	4'	C	1	✓	
FS77	S	10-10-22	1130	4'	C	1	✓	

ANALYSIS REQUEST

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stott	10/10/22 1630	2		
3			4		
5			6		

Revised Date 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3193-1
SDG Number: 03E1558005

Login Number: 3193
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3193-1
SDG Number: 03E1558005

Login Number: 3193
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/12/22 11:01 AM

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

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ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3197-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29 W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/17/2022 11:33:40 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Laboratory Job ID: 890-3197-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

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

HPLC/IC

Qualifier	Qualifier Description
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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Job ID: 890-3197-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3197-1

Receipt
The samples were received on 10/11/2022 4:16 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.8°C

Receipt Exceptions
The following samples analyzed were received and analyzed from an unpreserved bulk soil jar: FS86 (890-3197-1), FS87 (890-3197-2), FS88 (890-3197-3), FS89 (890-3197-4), FS90 (890-3197-5), FS91 (890-3197-6), FS92 (890-3197-7), FS93 (890-3197-8), FS94 (890-3197-9), SW12 (890-3197-10) and SW13 (890-3197-11).

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: Surrogate recovery for the following sample was outside control limits: (LCS 880-36849/2-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (880-20328-A-1-B MS) and (880-20328-A-1-C MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: SW12 (890-3197-10) and SW13 (890-3197-11). 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
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: FS86
Lab Sample ID: 890-3197-1
Date Collected: 10/11/22 11:20
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1360		50.0		mg/Kg			10/16/22 11:05	10

Client Sample ID: FS87
Lab Sample ID: 890-3197-2
Date Collected: 10/11/22 11:25
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1230		50.0		mg/Kg			10/16/22 11:20	10

Client Sample ID: FS88
Lab Sample ID: 890-3197-3
Date Collected: 10/11/22 11:30
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1140		49.9		mg/Kg			10/16/22 11:25	10

Client Sample ID: FS89
Lab Sample ID: 890-3197-4
Date Collected: 10/11/22 11:35
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1270		50.2		mg/Kg			10/16/22 11:30	10

Client Sample ID: FS90
Lab Sample ID: 890-3197-5
Date Collected: 10/11/22 11:40
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1510		50.2		mg/Kg			10/16/22 11:35	10

Client Sample ID: FS91
Lab Sample ID: 890-3197-6
Date Collected: 10/11/22 11:45
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1100		25.1		mg/Kg			10/16/22 11:39	5

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: FS92
Lab Sample ID: 890-3197-7
Date Collected: 10/11/22 11:50
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1050**		24.8		mg/Kg			10/16/22 11:44	5

Client Sample ID: FS93
Lab Sample ID: 890-3197-8
Date Collected: 10/11/22 11:55
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1330**		24.9		mg/Kg			10/16/22 11:59	5

Client Sample ID: FS94
Lab Sample ID: 890-3197-9
Date Collected: 10/11/22 12:00
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**668**		4.97		mg/Kg			10/16/22 12:04	1

Client Sample ID: SW12
Lab Sample ID: 890-3197-10
Date Collected: 10/11/22 10:40
Matrix: Solid
Date Received: 10/11/22 16:16
Sample Depth: 0 - 4

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		10/14/22 14:40	10/16/22 05:42	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:40	10/16/22 05:42	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:40	10/16/22 05:42	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/14/22 14:40	10/16/22 05:42	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/14/22 14:40	10/16/22 05:42	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/14/22 14:40	10/16/22 05:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*10/14/22 14:40*	*10/16/22 05:42*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*10/14/22 14:40*	*10/16/22 05:42*	*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			10/17/22 10:58	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			10/17/22 09:58	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	<49.9	U	49.9		mg/Kg		10/13/22 10:24	10/15/22 03:53	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: SW12

Lab Sample ID: 890-3197-10
Matrix: Solid
Date Collected: 10/11/22 10:40
Date Received: 10/11/22 16:16
Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/13/22 10:24	10/15/22 03:53	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/13/22 10:24	10/15/22 03:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*260*	*S1+*	*70 - 130*	*10/13/22 10:24*	*10/15/22 03:53*	*1*
o-Terphenyl	*262*	*S1+*	*70 - 130*	*10/13/22 10:24*	*10/15/22 03:53*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**524**		25.2		mg/Kg			10/16/22 12:18	5

Client Sample ID: SW13

Lab Sample ID: 890-3197-11
Matrix: Solid
Date Collected: 10/11/22 14:20
Date Received: 10/11/22 16:16
Sample Depth: 0 - 4

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/14/22 14:40	10/16/22 06:02	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/14/22 14:40	10/16/22 06:02	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/14/22 14:40	10/16/22 06:02	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/14/22 14:40	10/16/22 06:02	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/14/22 14:40	10/16/22 06:02	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/14/22 14:40	10/16/22 06:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*	*10/14/22 14:40*	*10/16/22 06:02*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/14/22 14:40*	*10/16/22 06:02*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/17/22 10:58	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			10/17/22 09:58	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	<49.9	U	49.9		mg/Kg		10/13/22 10:24	10/15/22 04:14	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/13/22 10:24	10/15/22 04:14	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/13/22 10:24	10/15/22 04:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*228*	*S1+*	*70 - 130*	*10/13/22 10:24*	*10/15/22 04:14*	*1*
o-Terphenyl	*234*	*S1+*	*70 - 130*	*10/13/22 10:24*	*10/15/22 04:14*	*1*

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: SW13
Date Collected: 10/11/22 14:20
Date Received: 10/11/22 16:16
Sample Depth: 0 - 4

Lab Sample ID: 890-3197-11
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	482		24.9		mg/Kg			10/16/22 12:23	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

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)
880-20173-A-1-H MS	Matrix Spike	101	111
880-20173-A-1-I MSD	Matrix Spike Duplicate	100	107
890-3197-10	SW12	107	95
890-3197-11	SW13	96	104
LCS 880-36974/1-A	Lab Control Sample	91	110
LCSD 880-36974/2-A	Lab Control Sample Dup	97	107
MB 880-36974/5-A	Method Blank	94	108

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-20328-A-1-B MS	Matrix Spike	197 S1+	189 S1+
880-20328-A-1-C MSD	Matrix Spike Duplicate	192 S1+	186 S1+
890-3197-10	SW12	260 S1+	262 S1+
890-3197-11	SW13	228 S1+	234 S1+
LCS 880-36849/2-A	Lab Control Sample	69 S1-	86
LCSD 880-36849/3-A	Lab Control Sample Dup	82	97
MB 880-36849/1-A	Method Blank	121	130

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36974/5-A
Matrix: Solid
Analysis Batch: 37019

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36974

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/14/22 13:40	10/15/22 23:39	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/14/22 13:40	10/15/22 23:39	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/14/22 13:40	10/15/22 23:39	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/14/22 13:40	10/15/22 23:39	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/14/22 13:40	10/15/22 23:39	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/14/22 13:40	10/15/22 23:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*	*10/14/22 13:40*	*10/15/22 23:39*	*1*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*	*10/14/22 13:40*	*10/15/22 23:39*	*1*

Lab Sample ID: LCS 880-36974/1-A
Matrix: Solid
Analysis Batch: 37019

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36974

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1035		mg/Kg		103	70 - 130		
Toluene			0.100	0.09474		mg/Kg		95	70 - 130		
Ethylbenzene			0.100	0.08217		mg/Kg		82	70 - 130		
m-Xylene & p-Xylene			0.200	0.1614		mg/Kg		81	70 - 130		
o-Xylene			0.100	0.08039		mg/Kg		80	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*

Lab Sample ID: LCSD 880-36974/2-A
Matrix: Solid
Analysis Batch: 37019

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36974

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09682		mg/Kg		97	70 - 130	7	35
Toluene			0.100	0.09596		mg/Kg		96	70 - 130	1	35
Ethylbenzene			0.100	0.08515		mg/Kg		85	70 - 130	4	35
m-Xylene & p-Xylene			0.200	0.1714		mg/Kg		86	70 - 130	6	35
o-Xylene			0.100	0.08519		mg/Kg		85	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-20173-A-1-H MS
Matrix: Solid
Analysis Batch: 37019

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.100	0.09356		mg/Kg		93	70 - 130		
Toluene	<0.00200	U	0.100	0.09305		mg/Kg		93	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

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

Lab Sample ID: 880-20173-A-1-H MS
Matrix: Solid
Analysis Batch: 37019

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.100	0.07822		mg/Kg		78	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.201	0.1562		mg/Kg		78	70 - 130
o-Xylene	<0.00200	U	0.100	0.07892		mg/Kg		79	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*

Lab Sample ID: 880-20173-A-1-I MSD
Matrix: Solid
Analysis Batch: 37019

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36974

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0998	0.09211		mg/Kg		92	70 - 130	2	35
Toluene	<0.00200	U	0.0998	0.09160		mg/Kg		92	70 - 130	2	35
Ethylbenzene	<0.00200	U	0.0998	0.07989		mg/Kg		80	70 - 130	2	35
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1599		mg/Kg		80	70 - 130	2	35
o-Xylene	<0.00200	U	0.0998	0.07976		mg/Kg		80	70 - 130	1	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

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

Lab Sample ID: MB 880-36849/1-A
Matrix: Solid
Analysis Batch: 36918

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36849

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		10/13/22 10:24	10/14/22 19:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/13/22 10:24	10/14/22 19:36	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/13/22 10:24	10/14/22 19:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*121*		*70 - 130*	*10/13/22 10:24*	*10/14/22 19:36*	*1*
o-Terphenyl	*130*		*70 - 130*	*10/13/22 10:24*	*10/14/22 19:36*	*1*

Lab Sample ID: LCS 880-36849/2-A
Matrix: Solid
Analysis Batch: 36918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36849

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1101		mg/Kg		110	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1057		mg/Kg		106	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-36849/2-A
Matrix: Solid
Analysis Batch: 36918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36849

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	69	S1-	70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: LCSD 880-36849/3-A
Matrix: Solid
Analysis Batch: 36918

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36849

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	991.9		mg/Kg		99	70 - 130	10	20
Diesel Range Organics (Over C10-C28)			1000	1151		mg/Kg		115	70 - 130	8	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	97		70 - 130

Lab Sample ID: 880-20328-A-1-B MS
Matrix: Solid
Analysis Batch: 36918

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36849

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	998	871.4		mg/Kg		86	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1191		mg/Kg		119	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	197	S1+	70 - 130
o-Terphenyl	189	S1+	70 - 130

Lab Sample ID: 880-20328-A-1-C MSD
Matrix: Solid
Analysis Batch: 36918

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36849

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	998	830.5		mg/Kg		82	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1172		mg/Kg		117	70 - 130	2	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	192	S1+	70 - 130
o-Terphenyl	186	S1+	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36935/1-A
Matrix: Solid
Analysis Batch: 37026

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			10/16/22 10:22	1

Lab Sample ID: LCS 880-36935/2-A
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	251.9		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-36935/3-A
Matrix: Solid
Analysis Batch: 37026

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249.2		mg/Kg		100	90 - 110	1	20

Lab Sample ID: 890-3197-7 MS
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: FS92
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1050		1240	2312		mg/Kg		102	90 - 110		

Lab Sample ID: 890-3197-7 MSD
Matrix: Solid
Analysis Batch: 37026

Client Sample ID: FS92
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1050		1240	2300		mg/Kg		101	90 - 110	1	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

GC VOA

Prep Batch: 36974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-10	SW12	Total/NA	Solid	5035	
890-3197-11	SW13	Total/NA	Solid	5035	
MB 880-36974/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36974/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36974/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20173-A-1-H MS	Matrix Spike	Total/NA	Solid	5035	
880-20173-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-10	SW12	Total/NA	Solid	8021B	36974
890-3197-11	SW13	Total/NA	Solid	8021B	36974
MB 880-36974/5-A	Method Blank	Total/NA	Solid	8021B	36974
LCS 880-36974/1-A	Lab Control Sample	Total/NA	Solid	8021B	36974
LCSD 880-36974/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36974
880-20173-A-1-H MS	Matrix Spike	Total/NA	Solid	8021B	36974
880-20173-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36974

Analysis Batch: 37133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-10	SW12	Total/NA	Solid	Total BTEX	
890-3197-11	SW13	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 36849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-10	SW12	Total/NA	Solid	8015NM Prep	
890-3197-11	SW13	Total/NA	Solid	8015NM Prep	
MB 880-36849/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36849/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36849/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20328-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20328-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-10	SW12	Total/NA	Solid	8015B NM	36849
890-3197-11	SW13	Total/NA	Solid	8015B NM	36849
MB 880-36849/1-A	Method Blank	Total/NA	Solid	8015B NM	36849
LCS 880-36849/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36849
LCSD 880-36849/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36849
880-20328-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	36849
880-20328-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36849

Analysis Batch: 37100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-10	SW12	Total/NA	Solid	8015 NM	
890-3197-11	SW13	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36935

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-1	FS86	Soluble	Solid	DI Leach	
890-3197-2	FS87	Soluble	Solid	DI Leach	
890-3197-3	FS88	Soluble	Solid	DI Leach	
890-3197-4	FS89	Soluble	Solid	DI Leach	
890-3197-5	FS90	Soluble	Solid	DI Leach	
890-3197-6	FS91	Soluble	Solid	DI Leach	
890-3197-7	FS92	Soluble	Solid	DI Leach	
890-3197-8	FS93	Soluble	Solid	DI Leach	
890-3197-9	FS94	Soluble	Solid	DI Leach	
890-3197-10	SW12	Soluble	Solid	DI Leach	
890-3197-11	SW13	Soluble	Solid	DI Leach	
MB 880-36935/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36935/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36935/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3197-7 MS	FS92	Soluble	Solid	DI Leach	
890-3197-7 MSD	FS92	Soluble	Solid	DI Leach	

Analysis Batch: 37026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3197-1	FS86	Soluble	Solid	300.0	36935
890-3197-2	FS87	Soluble	Solid	300.0	36935
890-3197-3	FS88	Soluble	Solid	300.0	36935
890-3197-4	FS89	Soluble	Solid	300.0	36935
890-3197-5	FS90	Soluble	Solid	300.0	36935
890-3197-6	FS91	Soluble	Solid	300.0	36935
890-3197-7	FS92	Soluble	Solid	300.0	36935
890-3197-8	FS93	Soluble	Solid	300.0	36935
890-3197-9	FS94	Soluble	Solid	300.0	36935
890-3197-10	SW12	Soluble	Solid	300.0	36935
890-3197-11	SW13	Soluble	Solid	300.0	36935
MB 880-36935/1-A	Method Blank	Soluble	Solid	300.0	36935
LCS 880-36935/2-A	Lab Control Sample	Soluble	Solid	300.0	36935
LCSD 880-36935/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36935
890-3197-7 MS	FS92	Soluble	Solid	300.0	36935
890-3197-7 MSD	FS92	Soluble	Solid	300.0	36935

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: FS86
Date Collected: 10/11/22 11:20
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-1
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 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		10			37026	10/16/22 11:05	CH	EET MID

Client Sample ID: FS87
Date Collected: 10/11/22 11:25
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-2
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 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		10			37026	10/16/22 11:20	CH	EET MID

Client Sample ID: FS88
Date Collected: 10/11/22 11:30
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-3
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			5.01 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		10			37026	10/16/22 11:25	CH	EET MID

Client Sample ID: FS89
Date Collected: 10/11/22 11:35
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		10			37026	10/16/22 11:30	CH	EET MID

Client Sample ID: FS90
Date Collected: 10/11/22 11:40
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		10			37026	10/16/22 11:35	CH	EET MID

Client Sample ID: FS91
Date Collected: 10/11/22 11:45
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		5			37026	10/16/22 11:39	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: FS92
Date Collected: 10/11/22 11:50
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-7
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			5.05 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		5			37026	10/16/22 11:44	CH	EET MID

Client Sample ID: FS93
Date Collected: 10/11/22 11:55
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-8
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	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		5			37026	10/16/22 11:59	CH	EET MID

Client Sample ID: FS94
Date Collected: 10/11/22 12:00
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-9
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	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		1			37026	10/16/22 12:04	CH	EET MID

Client Sample ID: SW12
Date Collected: 10/11/22 10:40
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	36974	10/14/22 14:40	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37019	10/16/22 05:42	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37133	10/17/22 10:58	SM	EET MID
Total/NA	Analysis	8015 NM		1			37100	10/17/22 09:58	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36849	10/13/22 10:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36918	10/15/22 03:53	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		5			37026	10/16/22 12:18	CH	EET MID

Client Sample ID: SW13
Date Collected: 10/11/22 14:20
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-11
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	36974	10/14/22 14:40	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37019	10/16/22 06:02	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37133	10/17/22 10:58	SM	EET MID
Total/NA	Analysis	8015 NM		1			37100	10/17/22 09:58	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	36849	10/13/22 10:24	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36918	10/15/22 04:14	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Client Sample ID: SW13

Date Collected: 10/11/22 14:20
Date Received: 10/11/22 16:16

Lab Sample ID: 890-3197-11

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			5.02 g	50 mL	36935	10/14/22 08:56	KS	EET MID
Soluble	Analysis	300.0		5			37026	10/16/22 12:23	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29 W VADER 100H

Job ID: 890-3197-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3197-1	FS86	Solid	10/11/22 11:20	10/11/22 16:16	4
890-3197-2	FS87	Solid	10/11/22 11:25	10/11/22 16:16	4
890-3197-3	FS88	Solid	10/11/22 11:30	10/11/22 16:16	4
890-3197-4	FS89	Solid	10/11/22 11:35	10/11/22 16:16	4
890-3197-5	FS90	Solid	10/11/22 11:40	10/11/22 16:16	4
890-3197-6	FS91	Solid	10/11/22 11:45	10/11/22 16:16	4
890-3197-7	FS92	Solid	10/11/22 11:50	10/11/22 16:16	4
890-3197-8	FS93	Solid	10/11/22 11:55	10/11/22 16:16	4
890-3197-9	FS94	Solid	10/11/22 12:00	10/11/22 16:16	4
890-3197-10	SW12	Solid	10/11/22 10:40	10/11/22 16:16	0 - 4
890-3197-11	SW13	Solid	10/11/22 14:20	10/11/22 16:16	0 - 4

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TNM007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	6.0
Total Containers:		Corrected Temperature:	5.8

ANALYSIS REQUEST

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	Pres. Code	Parameters: Chlorides	BTEX	TPH	Sample Comments
FS86	S	10/11/22	1120	4'	C	1		X			Incident #: NAPP2102831345
FS87			1125								
FS88			1130								
FS89			1135								Cost Center: 1568221001
FS90			1140								
FS91			1145								
FS92			1150								
FS93			1155								
FS94			1200								
SW12			1040	0-4'				X	X	X	

890-3197 Chain of Custody

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			10.11.22 1616	2		
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503 Email:		kjennings@ensolium.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:		
Cooler Custody Seals:	Yes No N/A	Correction Factor:		
Sample Custody Seals:	Yes No N/A	Temperature Reading:		
Total Containers:		Corrected Temperature:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides	BTEX	TPH
SW13	S	10/11/22	1420	0-4'	C	1		X	X	X

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

Incident #: NAPP2102831345

Cost Center: 1568221001

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		10.11.22 1616	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM

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10/17/2022

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3197-1
SDG Number: 03E1558005

Login Number: 3197
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3197-1
SDG Number: 03E1558005

Login Number: 3197
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/13/22 10:49 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3220-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/20/2022 9:38:41 AM

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

LINKS

Review your project results through my EOL

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Laboratory Job ID: 890-3220-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Job ID: 890-3220-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3220-1

Receipt
The samples were received on 10/17/2022 2:09 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

Receipt Exceptions
The following samples analyzed for were received and analyzed from an unpreserved bulk soil jar: SW07 (890-3220-1), SW14 (890-3220-2), FS95 (890-3220-3), FS96 (890-3220-4), FS97 (890-3220-5), FS98 (890-3220-6), FS99 (890-3220-7), FS100 (890-3220-8), FS101 (890-3220-9), FS102 (890-3220-10), FS103 (890-3220-11), FS104 (890-3220-12) and FS105 (890-3220-13).

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

GC Semi VOA
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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: SW07

Lab Sample ID: 890-3220-1
Matrix: Solid
Date Collected: 10/13/22 09:40
Date Received: 10/17/22 14:09
Sample Depth: 1 - 4

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 14:55	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 14:55	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 14:55	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/18/22 11:00	10/18/22 14:55	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/18/22 11:00	10/18/22 14:55	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/18/22 11:00	10/18/22 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*73*		*70 - 130*	*10/18/22 11:00*	*10/18/22 14:55*	*1*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*10/18/22 11:00*	*10/18/22 14:55*	*1*

Method: TAL SOP Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/18/22 15:39	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			10/19/22 09:39	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		10/18/22 10:12	10/18/22 12:16	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/18/22 10:12	10/18/22 12:16	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/18/22 10:12	10/18/22 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*101*		*70 - 130*	*10/18/22 10:12*	*10/18/22 12:16*	*1*
o-Terphenyl	*99*		*70 - 130*	*10/18/22 10:12*	*10/18/22 12:16*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**548**		4.97		mg/Kg			10/18/22 22:38	1

Client Sample ID: SW14

Lab Sample ID: 890-3220-2
Matrix: Solid
Date Collected: 10/13/22 09:00
Date Received: 10/17/22 14:09
Sample Depth: 1 - 4

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		10/18/22 11:00	10/18/22 15:15	1
Toluene	<0.00198	U	0.00198		mg/Kg		10/18/22 11:00	10/18/22 15:15	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		10/18/22 11:00	10/18/22 15:15	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		10/18/22 11:00	10/18/22 15:15	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		10/18/22 11:00	10/18/22 15:15	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		10/18/22 11:00	10/18/22 15:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/18/22 11:00*	*10/18/22 15:15*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: SW14

Lab Sample ID: 890-3220-2
Matrix: Solid
Date Collected: 10/13/22 09:00
Date Received: 10/17/22 14:09
Sample Depth: 1 - 4

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*10/18/22 11:00*	*10/18/22 15:15*	*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			10/18/22 15:50	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/19/22 09:39	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		10/18/22 10:12	10/18/22 13:17	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/18/22 10:12	10/18/22 13:17	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/18/22 10:12	10/18/22 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*105*		*70 - 130*	*10/18/22 10:12*	*10/18/22 13:17*	*1*
o-Terphenyl	*106*		*70 - 130*	*10/18/22 10:12*	*10/18/22 13:17*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**490**		5.04		mg/Kg			10/18/22 22:43	1

Client Sample ID: FS95

Lab Sample ID: 890-3220-3
Matrix: Solid
Date Collected: 10/13/22 10:05
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**669**		5.01		mg/Kg			10/19/22 14:42	1

Client Sample ID: FS96

Lab Sample ID: 890-3220-4
Matrix: Solid
Date Collected: 10/13/22 10:10
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**869**		4.99		mg/Kg			10/19/22 14:38	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: FS97
Lab Sample ID: 890-3220-5
Date Collected: 10/13/22 10:15
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	718		25.2		mg/Kg			10/19/22 14:57	5

Client Sample ID: FS98
Lab Sample ID: 890-3220-6
Date Collected: 10/13/22 10:20
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	422		4.97		mg/Kg			10/19/22 15:02	1

Client Sample ID: FS99
Lab Sample ID: 890-3220-7
Date Collected: 10/13/22 10:25
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	917		24.8		mg/Kg			10/19/22 15:16	5

Client Sample ID: FS100
Lab Sample ID: 890-3220-8
Date Collected: 10/13/22 10:30
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1060		25.1		mg/Kg			10/19/22 15:21	5

Client Sample ID: FS101
Lab Sample ID: 890-3220-9
Date Collected: 10/13/22 12:40
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1210		25.1		mg/Kg			10/19/22 15:26	5

Client Sample ID: FS102
Lab Sample ID: 890-3220-10
Date Collected: 10/13/22 12:45
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1010		24.9		mg/Kg			10/19/22 15:31	5

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: FS103
Lab Sample ID: 890-3220-11

Date Collected: 10/13/22 12:50
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	942		24.9		mg/Kg			10/19/22 15:36	5

Client Sample ID: FS104
Lab Sample ID: 890-3220-12

Date Collected: 10/13/22 12:55
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1940		25.1		mg/Kg			10/19/22 15:41	5

Client Sample ID: FS105
Lab Sample ID: 890-3220-13

Date Collected: 10/13/22 13:00
Matrix: Solid
Date Received: 10/17/22 14:09
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1370		50.5		mg/Kg			10/19/22 15:46	10

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

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)
880-20420-A-11-D MS	Matrix Spike	91	107
880-20420-A-11-E MSD	Matrix Spike Duplicate	115	106
890-3220-1	SW07	73	81
890-3220-2	SW14	90	90
LCS 880-37187/1-A	Lab Control Sample	108	101
LCSD 880-37187/2-A	Lab Control Sample Dup	91	112
MB 880-37187/5-A	Method Blank	82	95

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)
890-3220-1	SW07	101	99
890-3220-1 MS	SW07	102	93
890-3220-1 MSD	SW07	115	98
890-3220-2	SW14	105	106
LCS 880-37214/2-A	Lab Control Sample	83	84
LCSD 880-37214/3-A	Lab Control Sample Dup	85	86
MB 880-37214/1-A	Method Blank	119	118

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37187/5-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37187

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/18/22 08:29	10/18/22 10:54	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/18/22 08:29	10/18/22 10:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*70 - 130*	*10/18/22 08:29*	*10/18/22 10:54*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*10/18/22 08:29*	*10/18/22 10:54*	*1*

Lab Sample ID: LCS 880-37187/1-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37187

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1065		mg/Kg		107	70 - 130		
Toluene			0.100	0.1059		mg/Kg		106	70 - 130		
Ethylbenzene			0.100	0.1126		mg/Kg		113	70 - 130		
m-Xylene & p-Xylene			0.200	0.2390		mg/Kg		120	70 - 130		
o-Xylene			0.100	0.1175		mg/Kg		117	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 880-37187/2-A
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37187

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1219		mg/Kg		122	70 - 130	13	35
Toluene			0.100	0.1041		mg/Kg		104	70 - 130	2	35
Ethylbenzene			0.100	0.09897		mg/Kg		99	70 - 130	13	35
m-Xylene & p-Xylene			0.200	0.2004		mg/Kg		100	70 - 130	18	35
o-Xylene			0.100	0.09840		mg/Kg		98	70 - 130	18	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*112*		*70 - 130*

Lab Sample ID: 880-20420-A-11-D MS
Matrix: Solid
Analysis Batch: 37185

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37187

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00200	U	0.100	0.09868		mg/Kg		98	70 - 130		
Toluene	<0.00200	U	0.100	0.09554		mg/Kg		95	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

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

Lab Sample ID: 880-20420-A-11-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37185 — **Prep Batch: 37187**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00200	U	0.100	0.09684		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1854		mg/Kg		93	70 - 130
o-Xylene	<0.00200	U	0.100	0.09157		mg/Kg		91	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-20420-A-11-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37185 — **Prep Batch: 37187**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0998	0.1005		mg/Kg		101	70 - 130	2	35
Toluene	<0.00200	U	0.0998	0.1013		mg/Kg		101	70 - 130	6	35
Ethylbenzene	<0.00200	U	0.0998	0.1066		mg/Kg		107	70 - 130	10	35
m-Xylene & p-Xylene	<0.00401	U	0.200	0.2320		mg/Kg		116	70 - 130	22	35
o-Xylene	<0.00200	U	0.0998	0.1138		mg/Kg		114	70 - 130	22	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

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

Lab Sample ID: MB 880-37214/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37196 — **Prep Batch: 37214**

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		10/18/22 10:12	10/18/22 11:15	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/18/22 10:12	10/18/22 11:15	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/18/22 10:12	10/18/22 11:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*119*		*70 - 130*	*10/18/22 10:12*	*10/18/22 11:15*	*1*
o-Terphenyl	*118*		*70 - 130*	*10/18/22 10:12*	*10/18/22 11:15*	*1*

Lab Sample ID: LCS 880-37214/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37196 — **Prep Batch: 37214**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1108		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)			1000	744.4		mg/Kg		74	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-37214/2-A
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37214

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	83		70 - 130
o-Terphenyl	84		70 - 130

Lab Sample ID: LCSD 880-37214/3-A
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37214

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1146		mg/Kg		115	70 - 130	3	20
Diesel Range Organics (Over C10-C28)			1000	783.3		mg/Kg		78	70 - 130	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	85		70 - 130
o-Terphenyl	86		70 - 130

Lab Sample ID: 890-3220-1 MS
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: SW07
Prep Type: Total/NA
Prep Batch: 37214

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	998	1017		mg/Kg		99	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	989.7		mg/Kg		97	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	102		70 - 130
o-Terphenyl	93		70 - 130

Lab Sample ID: 890-3220-1 MSD
Matrix: Solid
Analysis Batch: 37196

Client Sample ID: SW07
Prep Type: Total/NA
Prep Batch: 37214

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	998	1163		mg/Kg		114	70 - 130	13	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1058		mg/Kg		104	70 - 130	7	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	115		70 - 130
o-Terphenyl	98		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37170/1-A
Matrix: Solid
Analysis Batch: 37231

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			10/18/22 21:40	1

Lab Sample ID: LCS 880-37170/2-A
Matrix: Solid
Analysis Batch: 37231

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	246.3		mg/Kg		99	90 - 110		

Lab Sample ID: LCSD 880-37170/3-A
Matrix: Solid
Analysis Batch: 37231

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	246.4		mg/Kg		99	90 - 110	0	20

Lab Sample ID: 880-20460-A-4-B MS
Matrix: Solid
Analysis Batch: 37231

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	14.5		251	273.9		mg/Kg		103	90 - 110		

Lab Sample ID: 880-20460-A-4-C MSD
Matrix: Solid
Analysis Batch: 37231

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	14.5		251	272.9		mg/Kg		103	90 - 110	0	20

Lab Sample ID: MB 880-37169/1-A
Matrix: Solid
Analysis Batch: 37281

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			10/19/22 13:20	1

Lab Sample ID: LCS 880-37169/2-A
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	253.7		mg/Kg		101	90 - 110		

Lab Sample ID: LCSD 880-37169/3-A
Matrix: Solid
Analysis Batch: 37281

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	254.7		mg/Kg		102	90 - 110	0	20

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-3220-3 MS
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: FS95
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	669		251	904.6		mg/Kg		94	90 - 110		

Lab Sample ID: 890-3220-3 MSD
Matrix: Solid
Analysis Batch: 37281

Client Sample ID: FS95
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	669		251	902.5		mg/Kg		93	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

GC VOA

Analysis Batch: 37185

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Total/NA	Solid	8021B	37187
890-3220-2	SW14	Total/NA	Solid	8021B	37187
MB 880-37187/5-A	Method Blank	Total/NA	Solid	8021B	37187
LCS 880-37187/1-A	Lab Control Sample	Total/NA	Solid	8021B	37187
LCSD 880-37187/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37187
880-20420-A-11-D MS	Matrix Spike	Total/NA	Solid	8021B	37187
880-20420-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37187

Prep Batch: 37187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Total/NA	Solid	5035	
890-3220-2	SW14	Total/NA	Solid	5035	
MB 880-37187/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37187/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37187/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20420-A-11-D MS	Matrix Spike	Total/NA	Solid	5035	
880-20420-A-11-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Total/NA	Solid	Total BTEX	
890-3220-2	SW14	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Total/NA	Solid	8015B NM	37214
890-3220-2	SW14	Total/NA	Solid	8015B NM	37214
MB 880-37214/1-A	Method Blank	Total/NA	Solid	8015B NM	37214
LCS 880-37214/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37214
LCSD 880-37214/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37214
890-3220-1 MS	SW07	Total/NA	Solid	8015B NM	37214
890-3220-1 MSD	SW07	Total/NA	Solid	8015B NM	37214

Prep Batch: 37214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Total/NA	Solid	8015NM Prep	
890-3220-2	SW14	Total/NA	Solid	8015NM Prep	
MB 880-37214/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37214/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37214/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3220-1 MS	SW07	Total/NA	Solid	8015NM Prep	
890-3220-1 MSD	SW07	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Total/NA	Solid	8015 NM	
890-3220-2	SW14	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 37169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-3	FS95	Soluble	Solid	DI Leach	
890-3220-4	FS96	Soluble	Solid	DI Leach	
890-3220-5	FS97	Soluble	Solid	DI Leach	
890-3220-6	FS98	Soluble	Solid	DI Leach	
890-3220-7	FS99	Soluble	Solid	DI Leach	
890-3220-8	FS100	Soluble	Solid	DI Leach	
890-3220-9	FS101	Soluble	Solid	DI Leach	
890-3220-10	FS102	Soluble	Solid	DI Leach	
890-3220-11	FS103	Soluble	Solid	DI Leach	
890-3220-12	FS104	Soluble	Solid	DI Leach	
890-3220-13	FS105	Soluble	Solid	DI Leach	
MB 880-37169/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3220-3 MS	FS95	Soluble	Solid	DI Leach	
890-3220-3 MSD	FS95	Soluble	Solid	DI Leach	

Leach Batch: 37170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Soluble	Solid	DI Leach	
890-3220-2	SW14	Soluble	Solid	DI Leach	
MB 880-37170/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37170/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37170/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-20460-A-4-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-20460-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-1	SW07	Soluble	Solid	300.0	37170
890-3220-2	SW14	Soluble	Solid	300.0	37170
MB 880-37170/1-A	Method Blank	Soluble	Solid	300.0	37170
LCS 880-37170/2-A	Lab Control Sample	Soluble	Solid	300.0	37170
LCSD 880-37170/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37170
880-20460-A-4-B MS	Matrix Spike	Soluble	Solid	300.0	37170
880-20460-A-4-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37170

Analysis Batch: 37281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3220-3	FS95	Soluble	Solid	300.0	37169
890-3220-4	FS96	Soluble	Solid	300.0	37169
890-3220-5	FS97	Soluble	Solid	300.0	37169
890-3220-6	FS98	Soluble	Solid	300.0	37169
890-3220-7	FS99	Soluble	Solid	300.0	37169
890-3220-8	FS100	Soluble	Solid	300.0	37169
890-3220-9	FS101	Soluble	Solid	300.0	37169
890-3220-10	FS102	Soluble	Solid	300.0	37169
890-3220-11	FS103	Soluble	Solid	300.0	37169
890-3220-12	FS104	Soluble	Solid	300.0	37169
890-3220-13	FS105	Soluble	Solid	300.0	37169
MB 880-37169/1-A	Method Blank	Soluble	Solid	300.0	37169

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

HPLC/IC (Continued)

Analysis Batch: 37281 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-37169/2-A	Lab Control Sample	Soluble	Solid	300.0	37169
LCSD 880-37169/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37169
890-3220-3 MS	FS95	Soluble	Solid	300.0	37169
890-3220-3 MSD	FS95	Soluble	Solid	300.0	37169

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: SW07
Date Collected: 10/13/22 09:40
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 14:55	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37250	10/18/22 15:39	SM	EET MID
Total/NA	Analysis	8015 NM		1			37276	10/19/22 09:39	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37214	10/18/22 10:12	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37196	10/18/22 12:16	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	37170	10/18/22 12:00	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37231	10/18/22 22:38	CH	EET MID

Client Sample ID: SW14
Date Collected: 10/13/22 09:00
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-2
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			5.05 g	5 mL	37187	10/18/22 11:00	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37185	10/18/22 15:15	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37250	10/18/22 15:50	SM	EET MID
Total/NA	Analysis	8015 NM		1			37276	10/19/22 09:39	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37214	10/18/22 10:12	AM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37196	10/18/22 13:17	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37170	10/18/22 12:00	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37231	10/18/22 22:43	CH	EET MID

Client Sample ID: FS95
Date Collected: 10/13/22 10:05
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37281	10/19/22 14:42	CH	EET MID

Client Sample ID: FS96
Date Collected: 10/13/22 10:10
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-4
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			5.01 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37281	10/19/22 14:38	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: FS97
Lab Sample ID: 890-3220-5
Date Collected: 10/13/22 10:15
Matrix: Solid
Date Received: 10/17/22 14:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 14:57	CH	EET MID

Client Sample ID: FS98
Lab Sample ID: 890-3220-6
Date Collected: 10/13/22 10:20
Matrix: Solid
Date Received: 10/17/22 14:09

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	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37281	10/19/22 15:02	CH	EET MID

Client Sample ID: FS99
Lab Sample ID: 890-3220-7
Date Collected: 10/13/22 10:25
Matrix: Solid
Date Received: 10/17/22 14:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.05 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:16	CH	EET MID

Client Sample ID: FS100
Lab Sample ID: 890-3220-8
Date Collected: 10/13/22 10:30
Matrix: Solid
Date Received: 10/17/22 14:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:21	CH	EET MID

Client Sample ID: FS101
Lab Sample ID: 890-3220-9
Date Collected: 10/13/22 12:40
Matrix: Solid
Date Received: 10/17/22 14:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:26	CH	EET MID

Client Sample ID: FS102
Lab Sample ID: 890-3220-10
Date Collected: 10/13/22 12:45
Matrix: Solid
Date Received: 10/17/22 14:09

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5.02 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:31	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Client Sample ID: FS103
Date Collected: 10/13/22 12:50
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-11
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	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:36	CH	EET MID

Client Sample ID: FS104
Date Collected: 10/13/22 12:55
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37281	10/19/22 15:41	CH	EET MID

Client Sample ID: FS105
Date Collected: 10/13/22 13:00
Date Received: 10/17/22 14:09

Lab Sample ID: 890-3220-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	37169	10/17/22 15:39	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37281	10/19/22 15:46	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W VADER 100H

Job ID: 890-3220-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3220-1	SW07	Solid	10/13/22 09:40	10/17/22 14:09	1 - 4
890-3220-2	SW14	Solid	10/13/22 09:00	10/17/22 14:09	1 - 4
890-3220-3	FS95	Solid	10/13/22 10:05	10/17/22 14:09	4
890-3220-4	FS96	Solid	10/13/22 10:10	10/17/22 14:09	4
890-3220-5	FS97	Solid	10/13/22 10:15	10/17/22 14:09	4
890-3220-6	FS98	Solid	10/13/22 10:20	10/17/22 14:09	4
890-3220-7	FS99	Solid	10/13/22 10:25	10/17/22 14:09	4
890-3220-8	FS100	Solid	10/13/22 10:30	10/17/22 14:09	4
890-3220-9	FS101	Solid	10/13/22 12:40	10/17/22 14:09	4
890-3220-10	FS102	Solid	10/13/22 12:45	10/17/22 14:09	4
890-3220-11	FS103	Solid	10/13/22 12:50	10/17/22 14:09	4
890-3220-12	FS104	Solid	10/13/22 12:55	10/17/22 14:09	4
890-3220-13	FS105	Solid	10/13/22 13:00	10/17/22 14:09	4

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☑ Rush	
Project Location:		Due Date: Normal	
Sampler's Name:	Connor Whitman	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:	TWN007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	5.8
Total Containers:		Corrected Temperature:	5.6

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2S0_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	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)	Sample Comments
SW07	S	10/13/2022	9:40	1-4'	Comp	1		x	x	x	24-Hr Rush
SW14	S	10/13/2022	9:00	1-4'	Comp	1		x	x	x	24-Hr Rush
FS95	S	10/13/2022	10:05	4'	Comp	1		x			
FS96	S	10/13/2022	10:10	4'	Comp	1		x			
FS97	S	10/13/2022	10:15	4'	Comp	1		x			
FS98	S	10/13/2022	10:20	4'	Comp	1		x			
FS99	S	10/13/2022	10:25	4'	Comp	1		x			
~~FS100~~	~~S~~	~~10/13/2022~~	~~10:30~~	~~4'~~	~~Comp~~	~~1~~		~~x~~			
FS101	S	10/13/2022	12:40	4'	Comp	1		x			
FS102	S	10/13/2022	12:45	4'	Comp	1		x			

890-3220 Chain of Custody

Sample Comments

Incident ID:
NAPP2102831345
Cost Center:
1568221001
AFE:

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		10.17.2214:09			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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10/20/2022

Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E. Green St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	303-887-2946	Email:	Garrett.Green@ExxonMobil.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:		Due Date: Normal	
Sampler's Name:	Connor Whitman	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:	
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
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021
FS103	S	10/13/2022	12:50	4'	Comp	1		x		
FS104	S	10/13/2022	12:55	4'	Comp	1		x		
FS105	S	10/13/2022	13:00	4'	Comp	1		x		

Sample Comments

Incident ID:
NAPP2102831345
Cost Center:
1568221001
AFE:

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			2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev: 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3220-1
SDG Number: 03E1558005

Login Number: 3220
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3220-1
SDG Number: 03E1558005

Login Number: 3220
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3206-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/20/2022 10:38:15 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3206-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Job ID: 890-3206-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3206-1

Receipt
The samples were received on 10/14/2022 2:43 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.8°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: FS106 (890-3206-1), FS107 (890-3206-2), FS108 (890-3206-3), FS109 (890-3206-4), FS110 (890-3206-5), FS111 (890-3206-6), FS112 (890-3206-7), FS113 (890-3206-8), FS114 (890-3206-9), FS115 (890-3206-10), FS116 (890-3206-11) and FS117 (890-3206-12).

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37047 and analytical batch 880-37378 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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Client Sample ID: FS106
Lab Sample ID: 890-3206-1
Date Collected: 10/14/22 10:45
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2110	F1	49.5		mg/Kg			10/20/22 00:13	10

Client Sample ID: FS107
Lab Sample ID: 890-3206-2
Date Collected: 10/14/22 10:50
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1570		50.5		mg/Kg			10/20/22 00:38	10

Client Sample ID: FS108
Lab Sample ID: 890-3206-3
Date Collected: 10/14/22 11:20
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	938		24.9		mg/Kg			10/20/22 00:47	5

Client Sample ID: FS109
Lab Sample ID: 890-3206-4
Date Collected: 10/14/22 11:25
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1410		49.8		mg/Kg			10/20/22 00:55	10

Client Sample ID: FS110
Lab Sample ID: 890-3206-5
Date Collected: 10/14/22 11:30
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1430		50.0		mg/Kg			10/20/22 01:03	10

Client Sample ID: FS111
Lab Sample ID: 890-3206-6
Date Collected: 10/14/22 11:35
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	464		5.00		mg/Kg			10/20/22 01:28	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Client Sample ID: FS112
Lab Sample ID: 890-3206-7
Date Collected: 10/14/22 11:40
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	629		25.0		mg/Kg			10/20/22 01:37	5

Client Sample ID: FS113
Lab Sample ID: 890-3206-8
Date Collected: 10/14/22 11:45
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1490		50.2		mg/Kg			10/20/22 01:45	10

Client Sample ID: FS114
Lab Sample ID: 890-3206-9
Date Collected: 10/14/22 12:20
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	870		25.1		mg/Kg			10/20/22 01:53	5

Client Sample ID: FS115
Lab Sample ID: 890-3206-10
Date Collected: 10/14/22 12:25
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1270		50.2		mg/Kg			10/20/22 02:02	10

Client Sample ID: FS116
Lab Sample ID: 890-3206-11
Date Collected: 10/14/22 12:30
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1410		49.5		mg/Kg			10/20/22 02:10	10

Client Sample ID: FS117
Lab Sample ID: 890-3206-12
Date Collected: 10/14/22 12:35
Matrix: Solid
Date Received: 10/14/22 14:43
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1420		49.7		mg/Kg			10/20/22 02:35	10

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37047/1-A
Matrix: Solid
Analysis Batch: 37378

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			10/19/22 23:48	1

Lab Sample ID: LCS 880-37047/2-A
Matrix: Solid
Analysis Batch: 37378

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	254.2		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-37047/3-A
Matrix: Solid
Analysis Batch: 37378

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249.4		mg/Kg		100	90 - 110	2	20

Lab Sample ID: 890-3206-1 MS
Matrix: Solid
Analysis Batch: 37378

Client Sample ID: FS106
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	2110	F1	2480	6399	F1	mg/Kg		173	90 - 110		

Lab Sample ID: 890-3206-1 MSD
Matrix: Solid
Analysis Batch: 37378

Client Sample ID: FS106
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2110	F1	2480	6378	F1	mg/Kg		173	90 - 110	0	20

Lab Sample ID: 890-3206-11 MS
Matrix: Solid
Analysis Batch: 37378

Client Sample ID: FS116
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1410		2480	4087		mg/Kg		108	90 - 110		

Lab Sample ID: 890-3206-11 MSD
Matrix: Solid
Analysis Batch: 37378

Client Sample ID: FS116
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1410		2480	3973		mg/Kg		103	90 - 110	3	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 37047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3206-1	FS106	Soluble	Solid	DI Leach	
890-3206-2	FS107	Soluble	Solid	DI Leach	
890-3206-3	FS108	Soluble	Solid	DI Leach	
890-3206-4	FS109	Soluble	Solid	DI Leach	
890-3206-5	FS110	Soluble	Solid	DI Leach	
890-3206-6	FS111	Soluble	Solid	DI Leach	
890-3206-7	FS112	Soluble	Solid	DI Leach	
890-3206-8	FS113	Soluble	Solid	DI Leach	
890-3206-9	FS114	Soluble	Solid	DI Leach	
890-3206-10	FS115	Soluble	Solid	DI Leach	
890-3206-11	FS116	Soluble	Solid	DI Leach	
890-3206-12	FS117	Soluble	Solid	DI Leach	
MB 880-37047/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37047/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37047/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3206-1 MS	FS106	Soluble	Solid	DI Leach	
890-3206-1 MSD	FS106	Soluble	Solid	DI Leach	
890-3206-11 MS	FS116	Soluble	Solid	DI Leach	
890-3206-11 MSD	FS116	Soluble	Solid	DI Leach	

Analysis Batch: 37378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3206-1	FS106	Soluble	Solid	300.0	37047
890-3206-2	FS107	Soluble	Solid	300.0	37047
890-3206-3	FS108	Soluble	Solid	300.0	37047
890-3206-4	FS109	Soluble	Solid	300.0	37047
890-3206-5	FS110	Soluble	Solid	300.0	37047
890-3206-6	FS111	Soluble	Solid	300.0	37047
890-3206-7	FS112	Soluble	Solid	300.0	37047
890-3206-8	FS113	Soluble	Solid	300.0	37047
890-3206-9	FS114	Soluble	Solid	300.0	37047
890-3206-10	FS115	Soluble	Solid	300.0	37047
890-3206-11	FS116	Soluble	Solid	300.0	37047
890-3206-12	FS117	Soluble	Solid	300.0	37047
MB 880-37047/1-A	Method Blank	Soluble	Solid	300.0	37047
LCS 880-37047/2-A	Lab Control Sample	Soluble	Solid	300.0	37047
LCSD 880-37047/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37047
890-3206-1 MS	FS106	Soluble	Solid	300.0	37047
890-3206-1 MSD	FS106	Soluble	Solid	300.0	37047
890-3206-11 MS	FS116	Soluble	Solid	300.0	37047
890-3206-11 MSD	FS116	Soluble	Solid	300.0	37047

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Client Sample ID: FS106
Date Collected: 10/14/22 10:45
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-1
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			5.05 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 00:13	CH	EET MID

Client Sample ID: FS107
Date Collected: 10/14/22 10:50
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 00:38	CH	EET MID

Client Sample ID: FS108
Date Collected: 10/14/22 11:20
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-3
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	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37378	10/20/22 00:47	CH	EET MID

Client Sample ID: FS109
Date Collected: 10/14/22 11:25
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-4
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			5.02 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 00:55	CH	EET MID

Client Sample ID: FS110
Date Collected: 10/14/22 11:30
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-5
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 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 01:03	CH	EET MID

Client Sample ID: FS111
Date Collected: 10/14/22 11:35
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-6
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 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37378	10/20/22 01:28	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Client Sample ID: FS112
Date Collected: 10/14/22 11:40
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-7
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			5.01 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37378	10/20/22 01:37	CH	EET MID

Client Sample ID: FS113
Date Collected: 10/14/22 11:45
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 01:45	CH	EET MID

Client Sample ID: FS114
Date Collected: 10/14/22 12:20
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37378	10/20/22 01:53	CH	EET MID

Client Sample ID: FS115
Date Collected: 10/14/22 12:25
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 02:02	CH	EET MID

Client Sample ID: FS116
Date Collected: 10/14/22 12:30
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-11
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			5.05 g	50 mL	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 02:10	CH	EET MID

Client Sample ID: FS117
Date Collected: 10/14/22 12:35
Date Received: 10/14/22 14:43

Lab Sample ID: 890-3206-12
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	37047	10/17/22 08:42	KS	EET MID
Soluble	Analysis	300.0		10	50 mL	50 mL	37378	10/20/22 02:35	CH	EET MID

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3206-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3206-1	FS106	Solid	10/14/22 10:45	10/14/22 14:43	4'
890-3206-2	FS107	Solid	10/14/22 10:50	10/14/22 14:43	4'
890-3206-3	FS108	Solid	10/14/22 11:20	10/14/22 14:43	4'
890-3206-4	FS109	Solid	10/14/22 11:25	10/14/22 14:43	4'
890-3206-5	FS110	Solid	10/14/22 11:30	10/14/22 14:43	4'
890-3206-6	FS111	Solid	10/14/22 11:35	10/14/22 14:43	4'
890-3206-7	FS112	Solid	10/14/22 11:40	10/14/22 14:43	4'
890-3206-8	FS113	Solid	10/14/22 11:45	10/14/22 14:43	4'
890-3206-9	FS114	Solid	10/14/22 12:20	10/14/22 14:43	4'
890-3206-10	FS115	Solid	10/14/22 12:25	10/14/22 14:43	4'
890-3206-11	FS116	Solid	10/14/22 12:30	10/14/22 14:43	4'
890-3206-12	FS117	Solid	10/14/22 12:35	10/14/22 14:43	4'

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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: _____

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Project Manager:	Nalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	hjennings@ensolum.com

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:	BEU 2910 Vader 100H	Turn Around	
Project Number:	03E1558005	☒ Routine ☐ Rush	
Project Location:	32.567-103.779	Due Date:	
Sampler's Name:	Julianna Falcomata	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:	IR-8
Cooler Custody Seals:	Yes No N/A	Correction Factor:	+0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	4.0
Total Containers:		Corrected Temperature:	3.8

ANALYSIS REQUEST

Pres. Code

Parameters: chlorides

890-3206 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	Sample Comments
FS106	S	10-14-22	1045	4'	C	1	
FS107			1050			1	
FS108			1120			1	
FS109			1125			1	
FS110			1130			1	
FS111			1135			1	
FS112			1140			1	
FS113			1145			1	
FS114			1220			1	
FS115			1225			1	

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 Julianna Falcomata	Amanda Stef	10/14/22 1443	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM
10/20/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Chance Green
Company Name:	Ensolum LLC	Company Name:	XTO Energy
Address:	3122 North Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	BEU 290 Vader 10H	Turn Around	
Project Number:	03E1558905	☒ Routine ☐ Rush	
Project Location:	32.567-103.779	Due Date:	
Sampler's Name:	Juliana Falcomata	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:	
Cooler Custody Seals:	Yes No N/A		Correction Factor:	
Sample Custody Seals:	Yes No N/A		Temperature Reading:	
Total Containers:			Corrected Temperature:	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides
FS116	S	10-14-22	1230	4'	C	1		✓
FS117	↓	↓	1235	↓	↓	1		

ANALYSIS REQUEST

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	Juliana Falcomata	Amanda Stutz	10/14/22 1443			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

10/20/2022

Page 15 of 17

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3206-1
SDG Number: 03E1558005

Login Number: 3206
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3206-1
SDG Number: 03E1558005

Login Number: 3206
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/18/22 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3222-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/21/2022 10:18:17 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3222-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Job ID: 890-3222-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3222-1

Receipt

The samples were received on 10/17/2022 3:41 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Client Sample ID: FS118
Lab Sample ID: 890-3222-1
Date Collected: 10/17/22 10:30
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	650		4.98		mg/Kg			10/20/22 19:22	1

Client Sample ID: FS119
Lab Sample ID: 890-3222-2
Date Collected: 10/17/22 10:35
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	868		25.2		mg/Kg			10/20/22 19:28	5

Client Sample ID: FS120
Lab Sample ID: 890-3222-3
Date Collected: 10/17/22 10:40
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	72.8		5.00		mg/Kg			10/20/22 19:46	1

Client Sample ID: FS121
Lab Sample ID: 890-3222-4
Date Collected: 10/17/22 10:45
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	66.1		5.00		mg/Kg			10/20/22 19:51	1

Client Sample ID: FS122
Lab Sample ID: 890-3222-5
Date Collected: 10/17/22 10:50
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	25.0		4.98		mg/Kg			10/20/22 19:56	1

Client Sample ID: FS123
Lab Sample ID: 890-3222-6
Date Collected: 10/17/22 10:55
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	81.1		5.03		mg/Kg			10/20/22 20:01	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Client Sample ID: FS124
Lab Sample ID: 890-3222-7
Date Collected: 10/17/22 11:00
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47.3		5.00		mg/Kg			10/20/22 20:06	1

Client Sample ID: FS125
Lab Sample ID: 890-3222-8
Date Collected: 10/17/22 11:05
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	105		4.96		mg/Kg			10/20/22 20:11	1

Client Sample ID: FS126
Lab Sample ID: 890-3222-9
Date Collected: 10/17/22 11:10
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	125		5.05		mg/Kg			10/20/22 20:25	1

Client Sample ID: FS127
Lab Sample ID: 890-3222-10
Date Collected: 10/17/22 11:15
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	60.3		5.02		mg/Kg			10/20/22 20:30	1

Client Sample ID: FS128
Lab Sample ID: 890-3222-11
Date Collected: 10/17/22 11:20
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.7		5.04		mg/Kg			10/20/22 20:47	1

Client Sample ID: FS129
Lab Sample ID: 890-3222-12
Date Collected: 10/17/22 11:25
Matrix: Solid
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47.3		5.03		mg/Kg			10/20/22 20:52	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Client Sample ID: FS130

Lab Sample ID: 890-3222-13
Matrix: Solid
Date Collected: 10/17/22 11:30
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.3		4.98		mg/Kg			10/20/22 20:56	1

Client Sample ID: FS131

Lab Sample ID: 890-3222-14
Matrix: Solid
Date Collected: 10/17/22 11:35
Date Received: 10/17/22 15:41
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.8		5.04		mg/Kg			10/20/22 21:01	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37328/1-A
Matrix: Solid
Analysis Batch: 37412

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			10/20/22 18:35	1

Lab Sample ID: LCS 880-37328/2-A
Matrix: Solid
Analysis Batch: 37412

Client Sample ID: Lab Control Sample
Prep Type: Soluble

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

Lab Sample ID: LCSD 880-37328/3-A
Matrix: Solid
Analysis Batch: 37412

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	263.4		mg/Kg		105	90 - 110	3	20

Lab Sample ID: 890-3222-8 MS
Matrix: Solid
Analysis Batch: 37412

Client Sample ID: FS125
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	105		248	353.2		mg/Kg		100	90 - 110		

Lab Sample ID: 890-3222-8 MSD
Matrix: Solid
Analysis Batch: 37412

Client Sample ID: FS125
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	105		251	356.6		mg/Kg		100	90 - 110	1	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 37328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3222-1	FS118	Soluble	Solid	DI Leach	
890-3222-2	FS119	Soluble	Solid	DI Leach	
890-3222-3	FS120	Soluble	Solid	DI Leach	
890-3222-4	FS121	Soluble	Solid	DI Leach	
890-3222-5	FS122	Soluble	Solid	DI Leach	
890-3222-6	FS123	Soluble	Solid	DI Leach	
890-3222-7	FS124	Soluble	Solid	DI Leach	
890-3222-8	FS125	Soluble	Solid	DI Leach	
890-3222-9	FS126	Soluble	Solid	DI Leach	
890-3222-10	FS127	Soluble	Solid	DI Leach	
890-3222-11	FS128	Soluble	Solid	DI Leach	
890-3222-12	FS129	Soluble	Solid	DI Leach	
890-3222-13	FS130	Soluble	Solid	DI Leach	
890-3222-14	FS131	Soluble	Solid	DI Leach	
MB 880-37328/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37328/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37328/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3222-8 MS	FS125	Soluble	Solid	DI Leach	
890-3222-8 MSD	FS125	Soluble	Solid	DI Leach	

Analysis Batch: 37412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3222-1	FS118	Soluble	Solid	300.0	37328
890-3222-2	FS119	Soluble	Solid	300.0	37328
890-3222-3	FS120	Soluble	Solid	300.0	37328
890-3222-4	FS121	Soluble	Solid	300.0	37328
890-3222-5	FS122	Soluble	Solid	300.0	37328
890-3222-6	FS123	Soluble	Solid	300.0	37328
890-3222-7	FS124	Soluble	Solid	300.0	37328
890-3222-8	FS125	Soluble	Solid	300.0	37328
890-3222-9	FS126	Soluble	Solid	300.0	37328
890-3222-10	FS127	Soluble	Solid	300.0	37328
890-3222-11	FS128	Soluble	Solid	300.0	37328
890-3222-12	FS129	Soluble	Solid	300.0	37328
890-3222-13	FS130	Soluble	Solid	300.0	37328
890-3222-14	FS131	Soluble	Solid	300.0	37328
MB 880-37328/1-A	Method Blank	Soluble	Solid	300.0	37328
LCS 880-37328/2-A	Lab Control Sample	Soluble	Solid	300.0	37328
LCSD 880-37328/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37328
890-3222-8 MS	FS125	Soluble	Solid	300.0	37328
890-3222-8 MSD	FS125	Soluble	Solid	300.0	37328

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Client Sample ID: FS118
Date Collected: 10/17/22 10:30
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-1
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			5.02 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 19:22	CH	EET MID

Client Sample ID: FS119
Date Collected: 10/17/22 10:35
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37412	10/20/22 19:28	CH	EET MID

Client Sample ID: FS120
Date Collected: 10/17/22 10:40
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-3
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			5.00 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 19:46	CH	EET MID

Client Sample ID: FS121
Date Collected: 10/17/22 10:45
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-4
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			5.00 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 19:51	CH	EET MID

Client Sample ID: FS122
Date Collected: 10/17/22 10:50
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-5
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			5.02 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 19:56	CH	EET MID

Client Sample ID: FS123
Date Collected: 10/17/22 10:55
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:01	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Client Sample ID: FS124
Date Collected: 10/17/22 11:00
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-7
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			5.00 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:06	CH	EET MID

Client Sample ID: FS125
Date Collected: 10/17/22 11:05
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-8
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			5.04 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:11	CH	EET MID

Client Sample ID: FS126
Date Collected: 10/17/22 11:10
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:25	CH	EET MID

Client Sample ID: FS127
Date Collected: 10/17/22 11:15
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:30	CH	EET MID

Client Sample ID: FS128
Date Collected: 10/17/22 11:20
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:47	CH	EET MID

Client Sample ID: FS129
Date Collected: 10/17/22 11:25
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:52	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Client Sample ID: FS130
Date Collected: 10/17/22 11:30
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-13
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			5.02 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 20:56	CH	EET MID

Client Sample ID: FS131
Date Collected: 10/17/22 11:35
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3222-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	37328	10/19/22 13:32	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37412	10/20/22 21:01	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3222-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3222-1	FS118	Solid	10/17/22 10:30	10/17/22 15:41	4'
890-3222-2	FS119	Solid	10/17/22 10:35	10/17/22 15:41	4'
890-3222-3	FS120	Solid	10/17/22 10:40	10/17/22 15:41	4'
890-3222-4	FS121	Solid	10/17/22 10:45	10/17/22 15:41	4'
890-3222-5	FS122	Solid	10/17/22 10:50	10/17/22 15:41	4'
890-3222-6	FS123	Solid	10/17/22 10:55	10/17/22 15:41	4'
890-3222-7	FS124	Solid	10/17/22 11:00	10/17/22 15:41	4'
890-3222-8	FS125	Solid	10/17/22 11:05	10/17/22 15:41	4'
890-3222-9	FS126	Solid	10/17/22 11:10	10/17/22 15:41	4'
890-3222-10	FS127	Solid	10/17/22 11:15	10/17/22 15:41	4'
890-3222-11	FS128	Solid	10/17/22 11:20	10/17/22 15:41	4'
890-3222-12	FS129	Solid	10/17/22 11:25	10/17/22 15:41	4'
890-3222-13	FS130	Solid	10/17/22 11:30	10/17/22 15:41	4'
890-3222-14	FS131	Solid	10/17/22 11:35	10/17/22 15:41	4'

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 2

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St.
City, State ZIP:	Carlsbad, NM, 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	njennings@ensolum.com

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:	BEU 24 Wadar 1001H	Turn Around	
Project Number:	03E1558005	☑ Routine ☐ Rush	
Project Location:	32.5167, -103.779	Due Date:	
Sampler's Name:	Juliana Falcomata	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:	TM-001	
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	

ANALYSIS REQUEST

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: Chlorides
FS118	S	10-17-22	1030	4'	C	1	✓
FS119	S	10-17-22	1035	4'	C	1	✓
FS120	S	10-17-22	1040	4'	C	1	✓
FS 121	S	10-17-22	1045	4'	C	1	✓
FS 122	S	10-17-22	1050	4'	C	1	✓
FS 123	S	10-17-22	1055	4'	C	1	✓
FS 124	S	10-17-22	1100	4'	C	1	✓
FS 125	S	10-17-22	1105	4'	C	1	✓
FS 126	S	10-17-22	1110	4'	C	1	✓
FS 127	S	10-17-22	1115	4'	C	1	✓

890-3222 Chain of Custody

Sample Comments

Incident # NAPP2102831345

Cost Center: 1568221001

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	Amanda Stutz	10/17/22 1541	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 National Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	BF 29 W Vader 102H	Turn Around	
Project Number:	03E-1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Julianna Falcomato	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:		
Cooler Custody Seals:	Yes No N/A	Correction Factor:		
Sample Custody Seals:	Yes No N/A	Temperature Reading:		
Total Containers:		Corrected Temperature:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides
FS128	S	10-17-22	1120	4'	C	1		✓
FS129	S	10-17-22	1125	4'	C	1		✓
FS130	S	10-17-22	1130	4'	C	1		✓
FS131	S	10-17-22	1135	4'	C	1		✓

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

Incident #: NAPP2162831545
Cost Center: 1568221001

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

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Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Amanda Stuf	10/17/22 1541	4		
3					
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3222-1
SDG Number: 03E1558005

Login Number: 3222
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3222-1
SDG Number: 03E1558005

Login Number: 3222
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/19/22 01:08 PM

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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3226-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29 W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/24/2022 8:13:54 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Laboratory Job ID: 890-3226-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Job ID: 890-3226-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3226-1

Receipt
The samples were received on 10/18/2022 4:19 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.8°C

Receipt Exceptions
The following samples analyzed were received and analyzed from an unpreserved bulk soil jar: FS132 (890-3226-1), FS133 (890-3226-2), FS134 (890-3226-3), FS135 (890-3226-4), FS136 (890-3226-5), FS137 (890-3226-6), FS138 (890-3226-7), FS139 (890-3226-8), FS140 (890-3226-9), FS141 (890-3226-10), FS142 (890-3226-11), FS143 (890-3226-12), FS144 (890-3226-13) and FS145 (890-3226-14).

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: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Client Sample ID: FS132
Lab Sample ID: 890-3226-1
Date Collected: 10/18/22 11:10
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	959		25.2		mg/Kg			10/21/22 12:14	5

Client Sample ID: FS133
Lab Sample ID: 890-3226-2
Date Collected: 10/18/22 11:15
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	801		25.0		mg/Kg			10/21/22 12:39	5

Client Sample ID: FS134
Lab Sample ID: 890-3226-3
Date Collected: 10/18/22 11:20
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	553		25.0		mg/Kg			10/21/22 12:47	5

Client Sample ID: FS135
Lab Sample ID: 890-3226-4
Date Collected: 10/18/22 11:25
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1020		25.1		mg/Kg			10/21/22 12:55	5

Client Sample ID: FS136
Lab Sample ID: 890-3226-5
Date Collected: 10/18/22 11:30
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	952		50.2		mg/Kg			10/21/22 13:04	10

Client Sample ID: FS137
Lab Sample ID: 890-3226-6
Date Collected: 10/18/22 14:30
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1030		50.1		mg/Kg			10/21/22 13:29	10

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Client Sample ID: FS138
Lab Sample ID: 890-3226-7
Date Collected: 10/18/22 14:35
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	958		24.9		mg/Kg			10/21/22 13:37	5

Client Sample ID: FS139
Lab Sample ID: 890-3226-8
Date Collected: 10/18/22 14:40
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	580		4.95		mg/Kg			10/21/22 13:45	1

Client Sample ID: FS140
Lab Sample ID: 890-3226-9
Date Collected: 10/18/22 14:45
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	722		24.8		mg/Kg			10/21/22 13:54	5

Client Sample ID: FS141
Lab Sample ID: 890-3226-10
Date Collected: 10/18/22 14:50
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	965		50.0		mg/Kg			10/21/22 14:02	10

Client Sample ID: FS142
Lab Sample ID: 890-3226-11
Date Collected: 10/18/22 14:55
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1070		50.1		mg/Kg			10/21/22 14:11	10

Client Sample ID: FS143
Lab Sample ID: 890-3226-12
Date Collected: 10/18/22 15:00
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	566		25.0		mg/Kg			10/21/22 14:36	5

Client Sample Results

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Client Sample ID: FS144
Lab Sample ID: 890-3226-13

Date Collected: 10/18/22 15:05
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	580		24.9		mg/Kg			10/21/22 14:44	5

Client Sample ID: FS145
Lab Sample ID: 890-3226-14

Date Collected: 10/18/22 15:10
Matrix: Solid
Date Received: 10/18/22 16:19
Sample Depth: 4

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1020		50.3		mg/Kg			10/21/22 15:09	10

QC Sample Results

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37404/1-A
Matrix: Solid
Analysis Batch: 37478

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			10/21/22 11:49	1

Lab Sample ID: LCS 880-37404/2-A
Matrix: Solid
Analysis Batch: 37478

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	249.3		mg/Kg		100	90 - 110		

Lab Sample ID: LCSD 880-37404/3-A
Matrix: Solid
Analysis Batch: 37478

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249.3		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3226-1 MS
Matrix: Solid
Analysis Batch: 37478

Client Sample ID: FS132
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	959		1260	2299		mg/Kg		106	90 - 110		

Lab Sample ID: 890-3226-1 MSD
Matrix: Solid
Analysis Batch: 37478

Client Sample ID: FS132
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	959		1260	2337		mg/Kg		109	90 - 110	2	20

Lab Sample ID: 890-3226-11 MS
Matrix: Solid
Analysis Batch: 37478

Client Sample ID: FS142
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1070		2510	3690		mg/Kg		105	90 - 110		

Lab Sample ID: 890-3226-11 MSD
Matrix: Solid
Analysis Batch: 37478

Client Sample ID: FS142
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1070		2510	3687		mg/Kg		104	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 37404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3226-1	FS132	Soluble	Solid	DI Leach	
890-3226-2	FS133	Soluble	Solid	DI Leach	
890-3226-3	FS134	Soluble	Solid	DI Leach	
890-3226-4	FS135	Soluble	Solid	DI Leach	
890-3226-5	FS136	Soluble	Solid	DI Leach	
890-3226-6	FS137	Soluble	Solid	DI Leach	
890-3226-7	FS138	Soluble	Solid	DI Leach	
890-3226-8	FS139	Soluble	Solid	DI Leach	
890-3226-9	FS140	Soluble	Solid	DI Leach	
890-3226-10	FS141	Soluble	Solid	DI Leach	
890-3226-11	FS142	Soluble	Solid	DI Leach	
890-3226-12	FS143	Soluble	Solid	DI Leach	
890-3226-13	FS144	Soluble	Solid	DI Leach	
890-3226-14	FS145	Soluble	Solid	DI Leach	
MB 880-37404/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37404/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37404/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3226-1 MS	FS132	Soluble	Solid	DI Leach	
890-3226-1 MSD	FS132	Soluble	Solid	DI Leach	
890-3226-11 MS	FS142	Soluble	Solid	DI Leach	
890-3226-11 MSD	FS142	Soluble	Solid	DI Leach	

Analysis Batch: 37478

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3226-1	FS132	Soluble	Solid	300.0	37404
890-3226-2	FS133	Soluble	Solid	300.0	37404
890-3226-3	FS134	Soluble	Solid	300.0	37404
890-3226-4	FS135	Soluble	Solid	300.0	37404
890-3226-5	FS136	Soluble	Solid	300.0	37404
890-3226-6	FS137	Soluble	Solid	300.0	37404
890-3226-7	FS138	Soluble	Solid	300.0	37404
890-3226-8	FS139	Soluble	Solid	300.0	37404
890-3226-9	FS140	Soluble	Solid	300.0	37404
890-3226-10	FS141	Soluble	Solid	300.0	37404
890-3226-11	FS142	Soluble	Solid	300.0	37404
890-3226-12	FS143	Soluble	Solid	300.0	37404
890-3226-13	FS144	Soluble	Solid	300.0	37404
890-3226-14	FS145	Soluble	Solid	300.0	37404
MB 880-37404/1-A	Method Blank	Soluble	Solid	300.0	37404
LCS 880-37404/2-A	Lab Control Sample	Soluble	Solid	300.0	37404
LCSD 880-37404/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37404
890-3226-1 MS	FS132	Soluble	Solid	300.0	37404
890-3226-1 MSD	FS132	Soluble	Solid	300.0	37404
890-3226-11 MS	FS142	Soluble	Solid	300.0	37404
890-3226-11 MSD	FS142	Soluble	Solid	300.0	37404

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Client Sample ID: FS132
Date Collected: 10/18/22 11:10
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.96 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 12:14	SMC	EET MID

Client Sample ID: FS133
Date Collected: 10/18/22 11:15
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-2
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 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 12:39	SMC	EET MID

Client Sample ID: FS134
Date Collected: 10/18/22 11:20
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-3
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 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 12:47	SMC	EET MID

Client Sample ID: FS135
Date Collected: 10/18/22 11:25
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 12:55	SMC	EET MID

Client Sample ID: FS136
Date Collected: 10/18/22 11:30
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.98 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		10			37478	10/21/22 13:04	SMC	EET MID

Client Sample ID: FS137
Date Collected: 10/18/22 14:30
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		10			37478	10/21/22 13:29	SMC	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Client Sample ID: FS138
Date Collected: 10/18/22 14:35
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-7
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	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 13:37	SMC	EET MID

Client Sample ID: FS139
Date Collected: 10/18/22 14:40
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-8
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			5.05 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		1			37478	10/21/22 13:45	SMC	EET MID

Client Sample ID: FS140
Date Collected: 10/18/22 14:45
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-9
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			5.05 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 13:54	SMC	EET MID

Client Sample ID: FS141
Date Collected: 10/18/22 14:50
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-10
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 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		10			37478	10/21/22 14:02	SMC	EET MID

Client Sample ID: FS142
Date Collected: 10/18/22 14:55
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.99 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		10			37478	10/21/22 14:11	SMC	EET MID

Client Sample ID: FS143
Date Collected: 10/18/22 15:00
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-12
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			5.01 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 14:36	SMC	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Client Sample ID: FS144
Date Collected: 10/18/22 15:05
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-13
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			5.02 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		5			37478	10/21/22 14:44	SMC	EET MID

Client Sample ID: FS145
Date Collected: 10/18/22 15:10
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3226-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37404	10/20/22 12:16	KS	EET MID
Soluble	Analysis	300.0		10			37478	10/21/22 15:09	SMC	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29 W Vader 100H

Job ID: 890-3226-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3226-1	FS132	Solid	10/18/22 11:10	10/18/22 16:19	4
890-3226-2	FS133	Solid	10/18/22 11:15	10/18/22 16:19	4
890-3226-3	FS134	Solid	10/18/22 11:20	10/18/22 16:19	4
890-3226-4	FS135	Solid	10/18/22 11:25	10/18/22 16:19	4
890-3226-5	FS136	Solid	10/18/22 11:30	10/18/22 16:19	4
890-3226-6	FS137	Solid	10/18/22 14:30	10/18/22 16:19	4
890-3226-7	FS138	Solid	10/18/22 14:35	10/18/22 16:19	4
890-3226-8	FS139	Solid	10/18/22 14:40	10/18/22 16:19	4
890-3226-9	FS140	Solid	10/18/22 14:45	10/18/22 16:19	4
890-3226-10	FS141	Solid	10/18/22 14:50	10/18/22 16:19	4
890-3226-11	FS142	Solid	10/18/22 14:55	10/18/22 16:19	4
890-3226-12	FS143	Solid	10/18/22 15:00	10/18/22 16:19	4
890-3226-13	FS144	Solid	10/18/22 15:05	10/18/22 16:19	4
890-3226-14	FS145	Solid	10/18/22 15:10	10/18/22 16:19	4

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 2

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29W Water Tank	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	TNM0078	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	4.8	
Total Containers:		Corrected Temperature:	3.6	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides
FS132	S	10/18/22	1110	4'	C	1		X
FS133			1115					
FS134			1120					
FS135			1125					
FS136			1130					
FS137			1430					
FS138			1435					
FS139			1440					
FS140			1445					
FS141			1450					

890-3226 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 Comments

Incident #:
NAPP2102831345

Cost Center:
1568221001

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			10.18.22 1619			
3				4		
5				6		

Revised Date: 08/25/2020 Rev. 2020.2

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 2 of 2

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817·683·2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 10CH	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Pres. Code	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:		
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
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: Chlorides	Sample Comments
FS142	S	10/18/22	1455	4'	C	1	X	Incident #: NAPP2102831345
FS143	↓	↓	1500	↓	↓	↓	↓	
FS144			1505					Cost Center: 1568221001
FS145			1510					

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		10·18·22	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3226-1
SDG Number: 03E1558005

Login Number: 3226
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3226-1
SDG Number: 03E1558005

Login Number: 3226
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/20/22 10:49 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3239-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/24/2022 12:23:05 PM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3239-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Job ID: 890-3239-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3239-1

Receipt

The samples were received on 10/20/2022 9:38 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 3.6°C

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Client Sample ID: FS146
Lab Sample ID: 890-3239-1
Date Collected: 10/19/22 15:40
Matrix: Solid
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1220		24.8		mg/Kg			10/23/22 19:36	5

Client Sample ID: FS147
Lab Sample ID: 890-3239-2
Date Collected: 10/19/22 15:45
Matrix: Solid
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	808		25.2		mg/Kg			10/23/22 19:51	5

Client Sample ID: FS148
Lab Sample ID: 890-3239-3
Date Collected: 10/19/22 15:50
Matrix: Solid
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	845		25.3		mg/Kg			10/23/22 19:56	5

Client Sample ID: FS149
Lab Sample ID: 890-3239-4
Date Collected: 10/19/22 15:55
Matrix: Solid
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1150		24.9		mg/Kg			10/23/22 20:01	5

Client Sample ID: FS150
Lab Sample ID: 890-3239-5
Date Collected: 10/19/22 16:30
Matrix: Solid
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	514		5.03		mg/Kg			10/23/22 20:05	1

Client Sample ID: FS151
Lab Sample ID: 890-3239-6
Date Collected: 10/19/22 16:35
Matrix: Solid
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1240		25.0		mg/Kg			10/23/22 20:20	5

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Client Sample ID: FS152

Lab Sample ID: 890-3239-7
Matrix: Solid
Date Collected: 10/19/22 16:40
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	651		25.0		mg/Kg			10/23/22 20:25	5

Client Sample ID: FS153

Lab Sample ID: 890-3239-8
Matrix: Solid
Date Collected: 10/19/22 16:45
Date Received: 10/20/22 09:38
Sample Depth: 4'

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	744		24.9		mg/Kg			10/23/22 20:30	5

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37511/1-A
Matrix: Solid
Analysis Batch: 37598

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			10/23/22 19:22	1

Lab Sample ID: LCS 880-37511/2-A
Matrix: Solid
Analysis Batch: 37598

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	259.6		mg/Kg		104	90 - 110		

Lab Sample ID: LCSD 880-37511/3-A
Matrix: Solid
Analysis Batch: 37598

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	259.0		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 890-3239-1 MS
Matrix: Solid
Analysis Batch: 37598

Client Sample ID: FS146
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1220		1240	2517		mg/Kg		105	90 - 110		

Lab Sample ID: 890-3239-1 MSD
Matrix: Solid
Analysis Batch: 37598

Client Sample ID: FS146
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1220		1240	2519		mg/Kg		105	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 37511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3239-1	FS146	Soluble	Solid	DI Leach	
890-3239-2	FS147	Soluble	Solid	DI Leach	
890-3239-3	FS148	Soluble	Solid	DI Leach	
890-3239-4	FS149	Soluble	Solid	DI Leach	
890-3239-5	FS150	Soluble	Solid	DI Leach	
890-3239-6	FS151	Soluble	Solid	DI Leach	
890-3239-7	FS152	Soluble	Solid	DI Leach	
890-3239-8	FS153	Soluble	Solid	DI Leach	
MB 880-37511/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37511/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37511/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3239-1 MS	FS146	Soluble	Solid	DI Leach	
890-3239-1 MSD	FS146	Soluble	Solid	DI Leach	

Analysis Batch: 37598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3239-1	FS146	Soluble	Solid	300.0	37511
890-3239-2	FS147	Soluble	Solid	300.0	37511
890-3239-3	FS148	Soluble	Solid	300.0	37511
890-3239-4	FS149	Soluble	Solid	300.0	37511
890-3239-5	FS150	Soluble	Solid	300.0	37511
890-3239-6	FS151	Soluble	Solid	300.0	37511
890-3239-7	FS152	Soluble	Solid	300.0	37511
890-3239-8	FS153	Soluble	Solid	300.0	37511
MB 880-37511/1-A	Method Blank	Soluble	Solid	300.0	37511
LCS 880-37511/2-A	Lab Control Sample	Soluble	Solid	300.0	37511
LCSD 880-37511/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37511
890-3239-1 MS	FS146	Soluble	Solid	300.0	37511
890-3239-1 MSD	FS146	Soluble	Solid	300.0	37511

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Client Sample ID: FS146
Date Collected: 10/19/22 15:40
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-1
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			5.04 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 19:36	CH	EET MID

Client Sample ID: FS147
Date Collected: 10/19/22 15:45
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 19:51	CH	EET MID

Client Sample ID: FS148
Date Collected: 10/19/22 15:50
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.95 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 19:56	CH	EET MID

Client Sample ID: FS149
Date Collected: 10/19/22 15:55
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-4
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			5.02 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 20:01	CH	EET MID

Client Sample ID: FS150
Date Collected: 10/19/22 16:30
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			4.97 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37598	10/23/22 20:05	CH	EET MID

Client Sample ID: FS151
Date Collected: 10/19/22 16:35
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-6
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			5.00 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 20:20	CH	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Client Sample ID: FS152
Date Collected: 10/19/22 16:40
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-7
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			5.00 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 20:25	CH	EET MID

Client Sample ID: FS153
Date Collected: 10/19/22 16:45
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3239-8
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			5.02 g	50 mL	37511	10/21/22 14:12	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37598	10/23/22 20:30	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Laboratory: Eurofins Midland

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

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-22-24	06-30-23

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3239-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3239-1	FS146	Solid	10/19/22 15:40	10/20/22 09:38	4'
890-3239-2	FS147	Solid	10/19/22 15:45	10/20/22 09:38	4'
890-3239-3	FS148	Solid	10/19/22 15:50	10/20/22 09:38	4'
890-3239-4	FS149	Solid	10/19/22 15:55	10/20/22 09:38	4'
890-3239-5	FS150	Solid	10/19/22 16:30	10/20/22 09:38	4'
890-3239-6	FS151	Solid	10/19/22 16:35	10/20/22 09:38	4'
890-3239-7	FS152	Solid	10/19/22 16:40	10/20/22 09:38	4'
890-3239-8	FS153	Solid	10/19/22 16:45	10/20/22 09:38	4'

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29wi Vader 100H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No
Samples Received Intact:	(Yes) No	Thermometer ID:	TNM 007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: Chlorides
FS146	S	10/19/22	1540	4'	C	1		X
FS147			1545					
FS148			1550					
FS149			1555					
FS150			1630					
FS151			1635					
FS152			1640					
FS153			1645					

890-3239 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 Comments

Incident #:
NAPP2102831345

Cost Center:
1568221001

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			2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3239-1
SDG Number: 03E1558005

Login Number: 3239
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3239-1
SDG Number: 03E1558005

Login Number: 3239
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/21/22 10:46 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3256-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

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Authorized for release by:
10/24/2022 4:29:18 PM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3256-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Job ID: 890-3256-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3256-1

Receipt
The sample was received on 10/20/2022 4:22 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: SW01A (890-3256-1).

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 matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37617 and analytical batch 880-37611 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.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Client Sample ID: SW01A

Date Collected: 10/20/22 10:40
Date Received: 10/20/22 16:22
Sample Depth: 0-4'

Lab Sample ID: 890-3256-1

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		10/21/22 14:15	10/24/22 13:18	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 13:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 13:18	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		10/21/22 14:15	10/24/22 13:18	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 13:18	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		10/21/22 14:15	10/24/22 13:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*	*10/21/22 14:15*	*10/24/22 13:18*	*1*
1,4-Difluorobenzene (Surr)	*85*		*70 - 130*	*10/21/22 14:15*	*10/24/22 13:18*	*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			10/24/22 16:38	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			10/24/22 17:18	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	<49.9	U	49.9		mg/Kg		10/24/22 08:52	10/24/22 13:22	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/24/22 08:52	10/24/22 13:22	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/24/22 08:52	10/24/22 13:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*75*		*70 - 130*	*10/24/22 08:52*	*10/24/22 13:22*	*1*
o-Terphenyl	*84*		*70 - 130*	*10/24/22 08:52*	*10/24/22 13:22*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		25.1		mg/Kg			10/24/22 10:47	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

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)
890-3253-A-1-A MS	Matrix Spike	100	95
890-3253-A-1-B MSD	Matrix Spike Duplicate	97	72
890-3256-1	SW01A	120	85
LCS 880-37514/1-A	Lab Control Sample	96	89
LCSD 880-37514/2-A	Lab Control Sample Dup	95	81
MB 880-37514/5-A	Method Blank	107	77

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)
890-3253-A-1-H MS	Matrix Spike	95	92
890-3253-A-1-I MSD	Matrix Spike Duplicate	88	84
890-3256-1	SW01A	75	84
LCS 880-37617/2-A	Lab Control Sample	105	110
LCSD 880-37617/3-A	Lab Control Sample Dup	108	114
MB 880-37617/1-A	Method Blank	80	94

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37514/5-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37514

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*
1,4-Difluorobenzene (Surr)	*77*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*

Lab Sample ID: LCS 880-37514/1-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1046		mg/Kg		105	70 - 130		
Toluene			0.100	0.1066		mg/Kg		107	70 - 130		
Ethylbenzene			0.100	0.09931		mg/Kg		99	70 - 130		
m-Xylene & p-Xylene			0.200	0.2054		mg/Kg		103	70 - 130		
o-Xylene			0.100	0.1034		mg/Kg		103	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: LCSD 880-37514/2-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09576		mg/Kg		96	70 - 130	9	35
Toluene			0.100	0.09860		mg/Kg		99	70 - 130	8	35
Ethylbenzene			0.100	0.1009		mg/Kg		101	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1953		mg/Kg		98	70 - 130	5	35
o-Xylene			0.100	0.09779		mg/Kg		98	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*

Lab Sample ID: 890-3253-A-1-A MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.100	0.1004		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.100	0.1142		mg/Kg		109	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

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

Lab Sample ID: 890-3253-A-1-A MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.09592		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2008		mg/Kg		100	70 - 130
o-Xylene	<0.00201	U	0.100	0.1000		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3253-A-1-B MSD
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09485		mg/Kg		94	70 - 130	6	35
Toluene	<0.00201	U	0.0996	0.09849		mg/Kg		94	70 - 130	15	35
Ethylbenzene	<0.00201	U	0.0996	0.09498		mg/Kg		95	70 - 130	1	35
m-Xylene & p-Xylene	<0.00402	U	0.199	0.1982		mg/Kg		100	70 - 130	1	35
o-Xylene	<0.00201	U	0.0996	0.1021		mg/Kg		103	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*72*		*70 - 130*

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

Lab Sample ID: MB 880-37617/1-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37617

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		10/24/22 08:52	10/24/22 10:35	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*80*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*
o-Terphenyl	*94*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1169		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1015		mg/Kg		102	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	110		70 - 130

Lab Sample ID: LCSD 880-37617/3-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1158		mg/Kg		116	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130	0	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	114		70 - 130

Lab Sample ID: 890-3253-A-1-H MS
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1543	F1	mg/Kg		151	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	812.7		mg/Kg		81	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: 890-3253-A-1-I MSD
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1075	F2	mg/Kg		104	70 - 130	36	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	782.1		mg/Kg		78	70 - 130	4	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	84		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37576/1-A
Matrix: Solid
Analysis Batch: 37635

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			10/24/22 09:50	1

Lab Sample ID: LCS 880-37576/2-A
Matrix: Solid
Analysis Batch: 37635

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	265.4		mg/Kg		106	90 - 110		

Lab Sample ID: LCSD 880-37576/3-A
Matrix: Solid
Analysis Batch: 37635

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	265.0		mg/Kg		106	90 - 110	0	20

Lab Sample ID: 890-3253-A-1-E MS
Matrix: Solid
Analysis Batch: 37635

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	144		251	384.3		mg/Kg		96	90 - 110		

Lab Sample ID: 890-3253-A-1-F MSD
Matrix: Solid
Analysis Batch: 37635

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	144		251	384.6		mg/Kg		96	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

GC VOA

Prep Batch: 37514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Total/NA	Solid	5035	
MB 880-37514/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3253-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
890-3253-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Total/NA	Solid	8021B	37514
MB 880-37514/5-A	Method Blank	Total/NA	Solid	8021B	37514
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	8021B	37514
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37514
890-3253-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	37514
890-3253-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37514

Analysis Batch: 37722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Total/NA	Solid	8015B NM	37617
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015B NM	37617
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37617
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37617
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	37617
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37617

Prep Batch: 37617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Total/NA	Solid	8015NM Prep	
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Soluble	Solid	DI Leach	
MB 880-37576/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

HPLC/IC (Continued)

Leach Batch: 37576 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3253-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3256-1	SW01A	Soluble	Solid	300.0	37576
MB 880-37576/1-A	Method Blank	Soluble	Solid	300.0	37576
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	300.0	37576
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37576
890-3253-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	37576
890-3253-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37576

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Client Sample ID: SW01A

Date Collected: 10/20/22 10:40
Date Received: 10/20/22 16:22

Lab Sample ID: 890-3256-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37514	10/21/22 14:15	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37615	10/24/22 13:18	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37722	10/24/22 16:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			37735	10/24/22 17:18	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 13:22	SM	EET MID
Soluble	Leach	DI Leach			4.99 g	50 mL	37576	10/24/22 09:30	SMC	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37635	10/24/22 10:47	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3256-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3256-1	SW01A	Solid	10/20/22 10:40	10/20/22 16:22	0-4'

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10/24/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC.	Company Name:	XTO Energy, Inc.
Address:	601 Marienfeld St. Suite 400	Address:	3104 E. Green Street
City, State ZIP:	Midland TX, 79701	City, State ZIP:	Carlsbad, NM 88220
Phone:	Email:	kjennings@ensolum.com	

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☐ Routine ☑ Rush	
Project Location:		Due Date:	24 Hr.
Sampler's Name:	Conner Shore	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:	TAM-007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.2
Total Containers:		Corrected Temperature:	3.0

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SW01	S	10.20.22	1040	0-4'	C	1		X	X	X

Parameters

890-3256 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2S0_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

Incident ID: NAPP2102831345

Cost Center: 1568221001

AFE: EW.2022.07165.EXP.01

10.00.22

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	Amanda Stat	10/20/22 1622			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3256-1
SDG Number: 03E1558005

Login Number: 3256
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3256-1
SDG Number: 03E1558005

Login Number: 3256
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/24/22 07:56 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3253-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/24/2022 4:28:25 PM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3253-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Job ID: 890-3253-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3253-1

Receipt
The sample was received on 10/20/2022 4:22 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: SW02A (890-3253-1).

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 matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37617 and analytical batch 880-37611 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.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Client Sample ID: SW02A

Date Collected: 10/20/22 11:00
Date Received: 10/20/22 16:22
Sample Depth: 0-4'

Lab Sample ID: 890-3253-1

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		10/21/22 14:15	10/24/22 12:16	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/21/22 14:15	10/24/22 12:16	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/21/22 14:15	10/24/22 12:16	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/21/22 14:15	10/24/22 12:16	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/21/22 14:15	10/24/22 12:16	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/21/22 14:15	10/24/22 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*120*		*70 - 130*	*10/21/22 14:15*	*10/24/22 12:16*	*1*
1,4-Difluorobenzene (Surr)	*77*		*70 - 130*	*10/21/22 14:15*	*10/24/22 12:16*	*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			10/24/22 16:38	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			10/24/22 17:18	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 F1 F2	49.8		mg/Kg		10/24/22 08:52	10/24/22 11:37	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/24/22 08:52	10/24/22 11:37	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/24/22 08:52	10/24/22 11:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*72*		*70 - 130*	*10/24/22 08:52*	*10/24/22 11:37*	*1*
o-Terphenyl	*82*		*70 - 130*	*10/24/22 08:52*	*10/24/22 11:37*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**144**		5.02		mg/Kg			10/24/22 10:23	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

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)
890-3253-1	SW02A	120	77
890-3253-1 MS	SW02A	100	95
890-3253-1 MSD	SW02A	97	72
LCS 880-37514/1-A	Lab Control Sample	96	89
LCSD 880-37514/2-A	Lab Control Sample Dup	95	81
MB 880-37514/5-A	Method Blank	107	77

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)
890-3253-1	SW02A	72	82
890-3253-1 MS	SW02A	95	92
890-3253-1 MSD	SW02A	88	84
LCS 880-37617/2-A	Lab Control Sample	105	110
LCSD 880-37617/3-A	Lab Control Sample Dup	108	114
MB 880-37617/1-A	Method Blank	80	94

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37514/5-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37514

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*
1,4-Difluorobenzene (Surr)	*77*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*

Lab Sample ID: LCS 880-37514/1-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1046		mg/Kg		105	70 - 130		
Toluene			0.100	0.1066		mg/Kg		107	70 - 130		
Ethylbenzene			0.100	0.09931		mg/Kg		99	70 - 130		
m-Xylene & p-Xylene			0.200	0.2054		mg/Kg		103	70 - 130		
o-Xylene			0.100	0.1034		mg/Kg		103	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: LCSD 880-37514/2-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09576		mg/Kg		96	70 - 130	9	35
Toluene			0.100	0.09860		mg/Kg		99	70 - 130	8	35
Ethylbenzene			0.100	0.1009		mg/Kg		101	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1953		mg/Kg		98	70 - 130	5	35
o-Xylene			0.100	0.09779		mg/Kg		98	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*

Lab Sample ID: 890-3253-1 MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: SW02A
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.100	0.1004		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.100	0.1142		mg/Kg		109	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

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

Lab Sample ID: 890-3253-1 MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: SW02A
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.09592		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2008		mg/Kg		100	70 - 130
o-Xylene	<0.00201	U	0.100	0.1000		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3253-1 MSD
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: SW02A
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09485		mg/Kg		94	70 - 130	6	35
Toluene	<0.00201	U	0.0996	0.09849		mg/Kg		94	70 - 130	15	35
Ethylbenzene	<0.00201	U	0.0996	0.09498		mg/Kg		95	70 - 130	1	35
m-Xylene & p-Xylene	<0.00402	U	0.199	0.1982		mg/Kg		100	70 - 130	1	35
o-Xylene	<0.00201	U	0.0996	0.1021		mg/Kg		103	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*72*		*70 - 130*

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

Lab Sample ID: MB 880-37617/1-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37617

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		10/24/22 08:52	10/24/22 10:35	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*80*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*
o-Terphenyl	*94*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1169		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1015		mg/Kg		102	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*105*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: LCSD 880-37617/3-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1158		mg/Kg		116	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*108*		*70 - 130*
o-Terphenyl	*114*		*70 - 130*

Lab Sample ID: 890-3253-1 MS
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: SW02A
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1543	F1	mg/Kg		151	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	812.7		mg/Kg		81	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*95*		*70 - 130*
o-Terphenyl	*92*		*70 - 130*

Lab Sample ID: 890-3253-1 MSD
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: SW02A
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1075	F2	mg/Kg		104	70 - 130	36	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	782.1		mg/Kg		78	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*88*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37576/1-A
Matrix: Solid
Analysis Batch: 37635

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			10/24/22 09:50	1

Lab Sample ID: LCS 880-37576/2-A
Matrix: Solid
Analysis Batch: 37635

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	265.4		mg/Kg		106	90 - 110		

Lab Sample ID: LCSD 880-37576/3-A
Matrix: Solid
Analysis Batch: 37635

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	265.0		mg/Kg		106	90 - 110	0	20

Lab Sample ID: 890-3253-1 MS
Matrix: Solid
Analysis Batch: 37635

Client Sample ID: SW02A
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	144		251	384.3		mg/Kg		96	90 - 110		

Lab Sample ID: 890-3253-1 MSD
Matrix: Solid
Analysis Batch: 37635

Client Sample ID: SW02A
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	144		251	384.6		mg/Kg		96	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

GC VOA

Prep Batch: 37514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Total/NA	Solid	5035	
MB 880-37514/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3253-1 MS	SW02A	Total/NA	Solid	5035	
890-3253-1 MSD	SW02A	Total/NA	Solid	5035	

Analysis Batch: 37615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Total/NA	Solid	8021B	37514
MB 880-37514/5-A	Method Blank	Total/NA	Solid	8021B	37514
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	8021B	37514
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37514
890-3253-1 MS	SW02A	Total/NA	Solid	8021B	37514
890-3253-1 MSD	SW02A	Total/NA	Solid	8021B	37514

Analysis Batch: 37719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Total/NA	Solid	8015B NM	37617
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015B NM	37617
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37617
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37617
890-3253-1 MS	SW02A	Total/NA	Solid	8015B NM	37617
890-3253-1 MSD	SW02A	Total/NA	Solid	8015B NM	37617

Prep Batch: 37617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Total/NA	Solid	8015NM Prep	
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3253-1 MS	SW02A	Total/NA	Solid	8015NM Prep	
890-3253-1 MSD	SW02A	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Soluble	Solid	DI Leach	
MB 880-37576/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

HPLC/IC (Continued)

Leach Batch: 37576 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1 MS	SW02A	Soluble	Solid	DI Leach	
890-3253-1 MSD	SW02A	Soluble	Solid	DI Leach	

Analysis Batch: 37635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-1	SW02A	Soluble	Solid	300.0	37576
MB 880-37576/1-A	Method Blank	Soluble	Solid	300.0	37576
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	300.0	37576
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37576
890-3253-1 MS	SW02A	Soluble	Solid	300.0	37576
890-3253-1 MSD	SW02A	Soluble	Solid	300.0	37576

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Client Sample ID: SW02A

Date Collected: 10/20/22 11:00
Date Received: 10/20/22 16:22

Lab Sample ID: 890-3253-1

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			4.97 g	5 mL	37514	10/21/22 14:15	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37615	10/24/22 12:16	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37719	10/24/22 16:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			37732	10/24/22 17:18	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 11:37	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37576	10/24/22 09:30	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37635	10/24/22 10:23	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3253-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3253-1	SW02A	Solid	10/20/22 11:00	10/20/22 16:22	0-4'

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10/24/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC.	Company Name:	XTO Energy, Inc.
Address:	601 Marienfeld St. Suite 400	Address:	3104 E. Green Street
City, State ZIP:	Midland TX, 79701	City, State ZIP:	Carlsbad, NM 88220
Phone:	Email:	kjennings@ensolum.com	

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☐ Routine ☑ Rush	
Project Location:		Due Date:	24 Hr.
Sampler's Name:	Conner Shore	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:	TAMB004	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.2	
Total Containers:		Corrected Temperature:	3.0	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021
SW02 A	S	10.20.22	1100	0-4'	C	1		X	X	X
C3										

Parameters

ANALYSIS REQUEST

890-3253 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2S0_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

Incident ID: NAPP2102831345
Cost Center:1568221001
AFE: EW.2022.07165.EXP.01

10.20.22

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	Amanda Estrada	10/20/22 1632	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020 2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3253-1
SDG Number: 03E1558005

Login Number: 3253
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3253-1
SDG Number: 03E1558005

Login Number: 3253
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/24/22 07:56 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3181-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/17/2022 11:23:01 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3181-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

Job ID: 890-3181-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3181-1

Receipt
The sample was received on 10/6/2022 4:24 PM. 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 4.6°C

Receipt Exceptions
The following samples analyzed were received and analyzed from an unpreserved bulk soil jar: SW05 (890-3181-1).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36682 and analytical batch 880-36933 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36531 and analytical batch 880-36746 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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

Client Sample ID: SW05

Date Collected: 10/06/22 12:05
Date Received: 10/06/22 16:24
Sample Depth: 0-4'

Lab Sample ID: 890-3181-1

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		10/11/22 13:34	10/15/22 19:29	1
Toluene	**0.00199**		0.00199		mg/Kg		10/11/22 13:34	10/15/22 19:29	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/22 13:34	10/15/22 19:29	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/22 13:34	10/15/22 19:29	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/22 13:34	10/15/22 19:29	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/22 13:34	10/15/22 19:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*	*10/11/22 13:34*	*10/15/22 19:29*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*10/11/22 13:34*	*10/15/22 19:29*	*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			10/17/22 10:03	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			10/12/22 09:35	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		10/10/22 16:51	10/11/22 16:51	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/10/22 16:51	10/11/22 16:51	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/22 16:51	10/11/22 16:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*76*		*70 - 130*	*10/10/22 16:51*	*10/11/22 16:51*	*1*
o-Terphenyl	*81*		*70 - 130*	*10/10/22 16:51*	*10/11/22 16:51*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**720**	**F1**	4.99		mg/Kg			10/12/22 03:28	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

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)
890-3175-A-1-G MS	Matrix Spike	99	111
890-3175-A-1-H MSD	Matrix Spike Duplicate	98	102
890-3181-1	SW05	99	101
LCS 880-36682/1-A	Lab Control Sample	93	110
LCSD 880-36682/2-A	Lab Control Sample Dup	92	110
MB 880-36682/5-A	Method Blank	92	115
MB 880-36886/5-A	Method Blank	90	110

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)
890-3173-A-49-C MS	Matrix Spike	87	84
890-3173-A-49-D MSD	Matrix Spike Duplicate	86	81
890-3181-1	SW05	76	81
LCS 880-36608/2-A	Lab Control Sample	117	127
LCSD 880-36608/3-A	Lab Control Sample Dup	98	109
MB 880-36608/1-A	Method Blank	111	123

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36682/5-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36682

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/22 13:34	10/15/22 12:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*	*10/11/22 13:34*	*10/15/22 12:03*	*1*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*	*10/11/22 13:34*	*10/15/22 12:03*	*1*

Lab Sample ID: LCS 880-36682/1-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36682

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09689		mg/Kg		97	70 - 130		
Toluene			0.100	0.09359		mg/Kg		94	70 - 130		
Ethylbenzene			0.100	0.08062		mg/Kg		81	70 - 130		
m-Xylene & p-Xylene			0.200	0.1616		mg/Kg		81	70 - 130		
o-Xylene			0.100	0.08028		mg/Kg		80	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*

Lab Sample ID: LCSD 880-36682/2-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36682

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1005		mg/Kg		100	70 - 130	4	35
Toluene			0.100	0.09574		mg/Kg		96	70 - 130	2	35
Ethylbenzene			0.100	0.08266		mg/Kg		83	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1659		mg/Kg		83	70 - 130	3	35
o-Xylene			0.100	0.08312		mg/Kg		83	70 - 130	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*

Lab Sample ID: 890-3175-A-1-G MS
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00202	U F1 F2	0.101	0.09405		mg/Kg		93	70 - 130		
Toluene	<0.00202	U	0.101	0.09271		mg/Kg		92	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

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

Lab Sample ID: 890-3175-A-1-G MS
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U F1	0.101	0.07908		mg/Kg		78	70 - 130
m-Xylene & p-Xylene	<0.00403	U F1	0.202	0.1583		mg/Kg		78	70 - 130
o-Xylene	<0.00202	U F1	0.101	0.07941		mg/Kg		78	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*

Lab Sample ID: 890-3175-A-1-H MSD
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36682

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F1 F2	0.0994	0.06368	F1 F2	mg/Kg		64	70 - 130	39	35
Toluene	<0.00202	U	0.0994	0.06957		mg/Kg		70	70 - 130	29	35
Ethylbenzene	<0.00202	U F1	0.0994	0.06289	F1	mg/Kg		63	70 - 130	23	35
m-Xylene & p-Xylene	<0.00403	U F1	0.199	0.1285	F1	mg/Kg		65	70 - 130	21	35
o-Xylene	<0.00202	U F1	0.0994	0.06546	F1	mg/Kg		65	70 - 130	19	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: MB 880-36886/5-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36886

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/13/22 13:52	10/15/22 00:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/13/22 13:52*	*10/15/22 00:27*	*1*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*	*10/13/22 13:52*	*10/15/22 00:27*	*1*

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

Lab Sample ID: MB 880-36608/1-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36608

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		10/10/22 16:51	10/11/22 10:33	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-36608/1-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36608

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		10/10/22 16:51	10/11/22 10:33	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/22 16:51	10/11/22 10:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*10/10/22 16:51*	*10/11/22 10:33*	*1*
o-Terphenyl	*123*		*70 - 130*	*10/10/22 16:51*	*10/11/22 10:33*	*1*

Lab Sample ID: LCS 880-36608/2-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36608

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1137		mg/Kg		114	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1037		mg/Kg		104	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*117*		*70 - 130*
o-Terphenyl	*127*		*70 - 130*

Lab Sample ID: LCSD 880-36608/3-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36608

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1054		mg/Kg		105	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	946.9		mg/Kg		95	70 - 130	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*98*		*70 - 130*
o-Terphenyl	*109*		*70 - 130*

Lab Sample ID: 890-3173-A-49-C MS
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36608

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1010		mg/Kg		101	70 - 130		
Diesel Range Organics (Over C10-C28)	433		999	1290		mg/Kg		86	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*87*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

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

Lab Sample ID: 890-3173-A-49-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36630 — **Prep Batch: 36608**

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	<49.9	U	1000	985.5		mg/Kg		99	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	433		1000	1243		mg/Kg		81	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*86*		*70 - 130*
o-Terphenyl	*81*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36531/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/12/22 03:11	1

Lab Sample ID: LCS 880-36531/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	260.8		mg/Kg		104	90 - 110		

Lab Sample ID: LCSD 880-36531/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	259.6		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 890-3181-1 MS — **Client Sample ID: SW05**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	720	F1	250	895.7	F1	mg/Kg		70	90 - 110		

Lab Sample ID: 890-3181-1 MSD — **Client Sample ID: SW05**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	720	F1	250	934.2	F1	mg/Kg		86	90 - 110	4	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

GC VOA

Prep Batch: 36682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Total/NA	Solid	5035	
MB 880-36682/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36682/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36682/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3175-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
890-3175-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 36886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36886/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Total/NA	Solid	8021B	36682
MB 880-36682/5-A	Method Blank	Total/NA	Solid	8021B	36682
MB 880-36886/5-A	Method Blank	Total/NA	Solid	8021B	36886
LCS 880-36682/1-A	Lab Control Sample	Total/NA	Solid	8021B	36682
LCSD 880-36682/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36682
890-3175-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	36682
890-3175-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36682

Analysis Batch: 37109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 36608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Total/NA	Solid	8015NM Prep	
MB 880-36608/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36608/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36608/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3173-A-49-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3173-A-49-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Total/NA	Solid	8015B NM	36608
MB 880-36608/1-A	Method Blank	Total/NA	Solid	8015B NM	36608
LCS 880-36608/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36608
LCSD 880-36608/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36608
890-3173-A-49-C MS	Matrix Spike	Total/NA	Solid	8015B NM	36608
890-3173-A-49-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36608

Analysis Batch: 36723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Soluble	Solid	DI Leach	
MB 880-36531/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36531/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36531/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3181-1 MS	SW05	Soluble	Solid	DI Leach	
890-3181-1 MSD	SW05	Soluble	Solid	DI Leach	

Analysis Batch: 36746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3181-1	SW05	Soluble	Solid	300.0	36531
MB 880-36531/1-A	Method Blank	Soluble	Solid	300.0	36531
LCS 880-36531/2-A	Lab Control Sample	Soluble	Solid	300.0	36531
LCSD 880-36531/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36531
890-3181-1 MS	SW05	Soluble	Solid	300.0	36531
890-3181-1 MSD	SW05	Soluble	Solid	300.0	36531

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

Client Sample ID: SW05

Date Collected: 10/06/22 12:05
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3181-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	36682	10/11/22 13:34	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36933	10/15/22 19:29	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37109	10/17/22 10:03	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36723	10/12/22 09:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	36608	10/10/22 16:51	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36630	10/11/22 16:51	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		1			36746	10/12/22 03:28	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3181-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3181-1	SW05	Solid	10/06/22 12:05	10/06/22 16:24	0-4'

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	D3E1558005	☑ Routine ☐ Rush	
Project Location:	32.567, -103.779	Due Date:	
Sampler's Name:	Meredith Roberts	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:	TM-007
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	4.8
Total Containers:		Corrected Temperature:	4.6

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	Pres. Code	Parameters: Chlorides	TPH	BTEX	Sample Comments
SW05	S	10/6/22	1205	0-4'	C	1		X	X	X	Incident #: NAPP2102831345
											Cost Center: 1568221001

890-3181 Chain of Custody

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		10/6/22 1424	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM
Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3181-1
SDG Number: 03E1558005

Login Number: 3181
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3181-1
SDG Number: 03E1558005

Login Number: 3181
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/10/22 08:41 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3182-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/17/2022 11:23:31 AM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3182-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

Job ID: 890-3182-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3182-1

Receipt
The sample was received on 10/6/2022 4:24 PM. 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 4.6°C

Receipt Exceptions
The following samples analyzed were received and analyzed from an unpreserved bulk soil jar: SW06 (890-3182-1).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-36682 and analytical batch 880-36933 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-36531 and analytical batch 880-36746 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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

Client Sample ID: SW06

Date Collected: 10/06/22 11:15
Date Received: 10/06/22 16:24
Sample Depth: 0-4'

Lab Sample ID: 890-3182-1

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		10/11/22 13:34	10/15/22 19:49	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/11/22 13:34	10/15/22 19:49	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/11/22 13:34	10/15/22 19:49	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/11/22 13:34	10/15/22 19:49	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/11/22 13:34	10/15/22 19:49	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/11/22 13:34	10/15/22 19:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*10/11/22 13:34*	*10/15/22 19:49*	*1*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*	*10/11/22 13:34*	*10/15/22 19:49*	*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			10/17/22 10:03	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			10/12/22 09:35	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		10/10/22 16:51	10/11/22 17:12	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/10/22 16:51	10/11/22 17:12	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/10/22 16:51	10/11/22 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*83*		*70 - 130*	*10/10/22 16:51*	*10/11/22 17:12*	*1*
o-Terphenyl	*90*		*70 - 130*	*10/10/22 16:51*	*10/11/22 17:12*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1360**		24.8		mg/Kg			10/12/22 03:44	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

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)
890-3175-A-1-G MS	Matrix Spike	99	111
890-3175-A-1-H MSD	Matrix Spike Duplicate	98	102
890-3182-1	SW06	97	111
LCS 880-36682/1-A	Lab Control Sample	93	110
LCSD 880-36682/2-A	Lab Control Sample Dup	92	110
MB 880-36682/5-A	Method Blank	92	115
MB 880-36886/5-A	Method Blank	90	110

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)
890-3173-A-49-C MS	Matrix Spike	87	84
890-3173-A-49-D MSD	Matrix Spike Duplicate	86	81
890-3182-1	SW06	83	90
LCS 880-36608/2-A	Lab Control Sample	117	127
LCSD 880-36608/3-A	Lab Control Sample Dup	98	109
MB 880-36608/1-A	Method Blank	111	123

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-36682/5-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36682

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/22 13:34	10/15/22 12:03	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/22 13:34	10/15/22 12:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*	*10/11/22 13:34*	*10/15/22 12:03*	*1*
1,4-Difluorobenzene (Surr)	*115*		*70 - 130*	*10/11/22 13:34*	*10/15/22 12:03*	*1*

Lab Sample ID: LCS 880-36682/1-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36682

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09689		mg/Kg		97	70 - 130		
Toluene			0.100	0.09359		mg/Kg		94	70 - 130		
Ethylbenzene			0.100	0.08062		mg/Kg		81	70 - 130		
m-Xylene & p-Xylene			0.200	0.1616		mg/Kg		81	70 - 130		
o-Xylene			0.100	0.08028		mg/Kg		80	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*

Lab Sample ID: LCSD 880-36682/2-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36682

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1005		mg/Kg		100	70 - 130	4	35
Toluene			0.100	0.09574		mg/Kg		96	70 - 130	2	35
Ethylbenzene			0.100	0.08266		mg/Kg		83	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1659		mg/Kg		83	70 - 130	3	35
o-Xylene			0.100	0.08312		mg/Kg		83	70 - 130	3	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*

Lab Sample ID: 890-3175-A-1-G MS
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00202	U F1 F2	0.101	0.09405		mg/Kg		93	70 - 130		
Toluene	<0.00202	U	0.101	0.09271		mg/Kg		92	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

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

Lab Sample ID: 890-3175-A-1-G MS
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00202	U F1	0.101	0.07908		mg/Kg		78	70 - 130
m-Xylene & p-Xylene	<0.00403	U F1	0.202	0.1583		mg/Kg		78	70 - 130
o-Xylene	<0.00202	U F1	0.101	0.07941		mg/Kg		78	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*111*		*70 - 130*

Lab Sample ID: 890-3175-A-1-H MSD
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36682

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00202	U F1 F2	0.0994	0.06368	F1 F2	mg/Kg		64	70 - 130	39	35
Toluene	<0.00202	U	0.0994	0.06957		mg/Kg		70	70 - 130	29	35
Ethylbenzene	<0.00202	U F1	0.0994	0.06289	F1	mg/Kg		63	70 - 130	23	35
m-Xylene & p-Xylene	<0.00403	U F1	0.199	0.1285	F1	mg/Kg		65	70 - 130	21	35
o-Xylene	<0.00202	U F1	0.0994	0.06546	F1	mg/Kg		65	70 - 130	19	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*

Lab Sample ID: MB 880-36886/5-A
Matrix: Solid
Analysis Batch: 36933

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36886

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/13/22 13:52	10/15/22 00:27	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/13/22 13:52	10/15/22 00:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*	*10/13/22 13:52*	*10/15/22 00:27*	*1*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*	*10/13/22 13:52*	*10/15/22 00:27*	*1*

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

Lab Sample ID: MB 880-36608/1-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36608

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		10/10/22 16:51	10/11/22 10:33	1

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-36608/1-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36608

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		10/10/22 16:51	10/11/22 10:33	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/10/22 16:51	10/11/22 10:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*10/10/22 16:51*	*10/11/22 10:33*	*1*
o-Terphenyl	*123*		*70 - 130*	*10/10/22 16:51*	*10/11/22 10:33*	*1*

Lab Sample ID: LCS 880-36608/2-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36608

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	1137		mg/Kg		114	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1037		mg/Kg		104	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*117*		*70 - 130*
o-Terphenyl	*127*		*70 - 130*

Lab Sample ID: LCSD 880-36608/3-A
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36608

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1054		mg/Kg		105	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	946.9		mg/Kg		95	70 - 130	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*98*		*70 - 130*
o-Terphenyl	*109*		*70 - 130*

Lab Sample ID: 890-3173-A-49-C MS
Matrix: Solid
Analysis Batch: 36630

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36608

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1010		mg/Kg		101	70 - 130		
Diesel Range Organics (Over C10-C28)	433		999	1290		mg/Kg		86	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*87*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

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

Lab Sample ID: 890-3173-A-49-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 36630 — **Prep Batch: 36608**

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	<49.9	U	1000	985.5		mg/Kg		99	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	433		1000	1243		mg/Kg		81	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*86*		*70 - 130*
o-Terphenyl	*81*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-36531/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/12/22 03:11	1

Lab Sample ID: LCS 880-36531/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	260.8		mg/Kg		104	90 - 110		

Lab Sample ID: LCSD 880-36531/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	259.6		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 890-3181-A-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	720	F1	250	895.7	F1	mg/Kg		70	90 - 110		

Lab Sample ID: 890-3181-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 36746

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	720	F1	250	934.2	F1	mg/Kg		86	90 - 110	4	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

GC VOA

Prep Batch: 36682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Total/NA	Solid	5035	
MB 880-36682/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-36682/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-36682/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3175-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
890-3175-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 36886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-36886/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 36933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Total/NA	Solid	8021B	36682
MB 880-36682/5-A	Method Blank	Total/NA	Solid	8021B	36682
MB 880-36886/5-A	Method Blank	Total/NA	Solid	8021B	36886
LCS 880-36682/1-A	Lab Control Sample	Total/NA	Solid	8021B	36682
LCSD 880-36682/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	36682
890-3175-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	36682
890-3175-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	36682

Analysis Batch: 37110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 36608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Total/NA	Solid	8015NM Prep	
MB 880-36608/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-36608/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-36608/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3173-A-49-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3173-A-49-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 36630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Total/NA	Solid	8015B NM	36608
MB 880-36608/1-A	Method Blank	Total/NA	Solid	8015B NM	36608
LCS 880-36608/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	36608
LCSD 880-36608/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	36608
890-3173-A-49-C MS	Matrix Spike	Total/NA	Solid	8015B NM	36608
890-3173-A-49-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	36608

Analysis Batch: 36724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Total/NA	Solid	8015 NM	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

HPLC/IC

Leach Batch: 36531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Soluble	Solid	DI Leach	
MB 880-36531/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-36531/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-36531/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3181-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3181-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 36746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3182-1	SW06	Soluble	Solid	300.0	36531
MB 880-36531/1-A	Method Blank	Soluble	Solid	300.0	36531
LCS 880-36531/2-A	Lab Control Sample	Soluble	Solid	300.0	36531
LCSD 880-36531/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	36531
890-3181-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	36531
890-3181-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	36531

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

Client Sample ID: SW06

Date Collected: 10/06/22 11:15
Date Received: 10/06/22 16:24

Lab Sample ID: 890-3182-1

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			4.96 g	5 mL	36682	10/11/22 13:34	EL	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	36933	10/15/22 19:49	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37110	10/17/22 10:03	AJ	EET MID
Total/NA	Analysis	8015 NM		1			36724	10/12/22 09:35	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	36608	10/10/22 16:51	AJ	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	36630	10/11/22 17:12	SM	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	36531	10/10/22 10:09	CH	EET MID
Soluble	Analysis	300.0		5			36746	10/12/22 03:44	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3182-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3182-1	SW06	Solid	10/06/22 11:15	10/06/22 16:24	0-4'

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10/17/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 1001H	Turn Around	☑ Routine ☐ Rush
Project Number:	03E1558005	Due Date:	
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	TMM-001	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	4.8	
Total Containers:		Corrected Temperature:	4.6	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: BTEX	Chlorides	TPH
SW06	S	10/6/22	1115	0-4'	C	1		X	X	X

890-3182 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 Comments

Incident #:
NAPP2202831345
Cost Center:
1568221001

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			2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3182-1
SDG Number: 03E1558005

Login Number: 3182
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3182-1
SDG Number: 03E1558005

Login Number: 3182
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/10/22 08:41 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3221-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/20/2022 9:48:04 AM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3221-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Qualifiers

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Job ID: 890-3221-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3221-1

Receipt
The samples were received on 10/17/2022 3:41 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.2°C

GC Semi VOA
Method 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37345 and analytical batch 880-37271 was outside the upper control limits.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (LCSD 880-37345/3-A). Evidence of matrix interferences is not obvious.

Method 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: SW10 (890-3221-3). 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
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Client Sample ID: SW08

Lab Sample ID: 890-3221-1
Matrix: Solid
Date Collected: 10/17/22 13:15
Date Received: 10/17/22 15:41
Sample Depth: 0-4'

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			10/20/22 10:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/19/22 16:32	10/19/22 22:28	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/19/22 16:32	10/19/22 22:28	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/19/22 16:32	10/19/22 22:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*97*		*70 - 130*	*10/19/22 16:32*	*10/19/22 22:28*	*1*
o-Terphenyl	*109*		*70 - 130*	*10/19/22 16:32*	*10/19/22 22:28*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**356**		5.00		mg/Kg			10/19/22 16:29	1

Client Sample ID: SW09

Lab Sample ID: 890-3221-2
Matrix: Solid
Date Collected: 10/17/22 13:20
Date Received: 10/17/22 15:41
Sample Depth: 0-4'

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			10/20/22 10:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/19/22 16:32	10/19/22 23:32	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/19/22 16:32	10/19/22 23:32	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/19/22 16:32	10/19/22 23:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*10/19/22 16:32*	*10/19/22 23:32*	*1*
o-Terphenyl	*114*		*70 - 130*	*10/19/22 16:32*	*10/19/22 23:32*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**546**		5.04		mg/Kg			10/19/22 16:34	1

Client Sample ID: SW10

Lab Sample ID: 890-3221-3
Matrix: Solid
Date Collected: 10/17/22 13:25
Date Received: 10/17/22 15:41
Sample Depth: 0-4'

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			10/20/22 10:26	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Client Sample ID: SW10

Date Collected: 10/17/22 13:25
Date Received: 10/17/22 15:41
Sample Depth: 0-4'

Lab Sample ID: 890-3221-3

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	<49.8	U	49.8		mg/Kg		10/19/22 16:32	10/19/22 23:52	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/19/22 16:32	10/19/22 23:52	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/19/22 16:32	10/19/22 23:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*124*		*70 - 130*	*10/19/22 16:32*	*10/19/22 23:52*	*1*
o-Terphenyl	*135*	*S1+*	*70 - 130*	*10/19/22 16:32*	*10/19/22 23:52*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**970**		25.1		mg/Kg			10/19/22 16:39	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

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)										
890-3221-1	SW08	97	109										
890-3221-1 MS	SW08	104	101										
890-3221-1 MSD	SW08	115	114										
890-3221-2	SW09	104	114										
890-3221-3	SW10	124	135 S1+										
LCS 880-37345/2-A	Lab Control Sample	107	121										
LCSD 880-37345/3-A	Lab Control Sample Dup	126	140 S1+										
MB 880-37345/1-A	Method Blank	125	140 S1+										

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-37345/1-A
Matrix: Solid
Analysis Batch: 37271

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37345

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		10/19/22 16:32	10/19/22 21:25	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/19/22 16:32	10/19/22 21:25	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/19/22 16:32	10/19/22 21:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*125*		*70 - 130*	*10/19/22 16:32*	*10/19/22 21:25*	*1*
o-Terphenyl	*140*	*S1+*	*70 - 130*	*10/19/22 16:32*	*10/19/22 21:25*	*1*

Lab Sample ID: LCS 880-37345/2-A
Matrix: Solid
Analysis Batch: 37271

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37345

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	918.7		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	940.7		mg/Kg		94	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*107*		*70 - 130*
o-Terphenyl	*121*		*70 - 130*

Lab Sample ID: LCSD 880-37345/3-A
Matrix: Solid
Analysis Batch: 37271

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37345

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	806.2		mg/Kg		81	70 - 130	13	20
Diesel Range Organics (Over C10-C28)			1000	1118		mg/Kg		112	70 - 130	17	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*126*		*70 - 130*
o-Terphenyl	*140*	*S1+*	*70 - 130*

Lab Sample ID: 890-3221-1 MS
Matrix: Solid
Analysis Batch: 37271

Client Sample ID: SW08
Prep Type: Total/NA
Prep Batch: 37345

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	998	1148		mg/Kg		112	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1110		mg/Kg		109	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

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

Lab Sample ID: 890-3221-1 MS
Matrix: Solid
Analysis Batch: 37271

Client Sample ID: SW08
Prep Type: Total/NA
Prep Batch: 37345

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*104*		*70 - 130*
o-Terphenyl	*101*		*70 - 130*

Lab Sample ID: 890-3221-1 MSD
Matrix: Solid
Analysis Batch: 37271

Client Sample ID: SW08
Prep Type: Total/NA
Prep Batch: 37345

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	998	995.7		mg/Kg		97	70 - 130	14	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	1250		mg/Kg		123	70 - 130	12	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*115*		*70 - 130*
o-Terphenyl	*114*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37267/1-A
Matrix: Solid
Analysis Batch: 37289

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			10/19/22 10:52	1

Lab Sample ID: LCS 880-37267/2-A
Matrix: Solid
Analysis Batch: 37289

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	250.6		mg/Kg		100	90 - 110		

Lab Sample ID: LCSD 880-37267/3-A
Matrix: Solid
Analysis Batch: 37289

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	250.8		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 890-3221-3 MS
Matrix: Solid
Analysis Batch: 37289

Client Sample ID: SW10
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	970		1260	2239		mg/Kg		101	90 - 110		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-3221-3 MSD
Matrix: Solid
Analysis Batch: 37289

Client Sample ID: SW10
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	970		1260	2229		mg/Kg		100	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

GC Semi VOA

Analysis Batch: 37271

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3221-1	SW08	Total/NA	Solid	8015B NM	37345
890-3221-2	SW09	Total/NA	Solid	8015B NM	37345
890-3221-3	SW10	Total/NA	Solid	8015B NM	37345
MB 880-37345/1-A	Method Blank	Total/NA	Solid	8015B NM	37345
LCS 880-37345/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37345
LCSD 880-37345/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37345
890-3221-1 MS	SW08	Total/NA	Solid	8015B NM	37345
890-3221-1 MSD	SW08	Total/NA	Solid	8015B NM	37345

Prep Batch: 37345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3221-1	SW08	Total/NA	Solid	8015NM Prep	
890-3221-2	SW09	Total/NA	Solid	8015NM Prep	
890-3221-3	SW10	Total/NA	Solid	8015NM Prep	
MB 880-37345/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37345/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37345/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3221-1 MS	SW08	Total/NA	Solid	8015NM Prep	
890-3221-1 MSD	SW08	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3221-1	SW08	Total/NA	Solid	8015 NM	
890-3221-2	SW09	Total/NA	Solid	8015 NM	
890-3221-3	SW10	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3221-1	SW08	Soluble	Solid	DI Leach	
890-3221-2	SW09	Soluble	Solid	DI Leach	
890-3221-3	SW10	Soluble	Solid	DI Leach	
MB 880-37267/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37267/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37267/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3221-3 MS	SW10	Soluble	Solid	DI Leach	
890-3221-3 MSD	SW10	Soluble	Solid	DI Leach	

Analysis Batch: 37289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3221-1	SW08	Soluble	Solid	300.0	37267
890-3221-2	SW09	Soluble	Solid	300.0	37267
890-3221-3	SW10	Soluble	Solid	300.0	37267
MB 880-37267/1-A	Method Blank	Soluble	Solid	300.0	37267
LCS 880-37267/2-A	Lab Control Sample	Soluble	Solid	300.0	37267
LCSD 880-37267/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37267
890-3221-3 MS	SW10	Soluble	Solid	300.0	37267
890-3221-3 MSD	SW10	Soluble	Solid	300.0	37267

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Client Sample ID: SW08

Date Collected: 10/17/22 13:15
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3221-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			37391	10/20/22 10:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37345	10/19/22 16:32	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37271	10/19/22 22:28	SM	EET MID
Soluble	Leach	DI Leach			5.00 g	50 mL	37267	10/19/22 12:25	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37289	10/19/22 16:29	CH	EET MID

Client Sample ID: SW09

Date Collected: 10/17/22 13:20
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3221-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			37391	10/20/22 10:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37345	10/19/22 16:32	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37271	10/19/22 23:32	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37267	10/19/22 12:25	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37289	10/19/22 16:34	CH	EET MID

Client Sample ID: SW10

Date Collected: 10/17/22 13:25
Date Received: 10/17/22 15:41

Lab Sample ID: 890-3221-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			37391	10/20/22 10:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37345	10/19/22 16:32	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37271	10/19/22 23:52	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37267	10/19/22 12:25	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37289	10/19/22 16:39	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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

Method Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Method	Method Description	Protocol	Laboratory
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	MCAWW	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

Sample Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3221-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3221-1	SW08	Solid	10/17/22 13:15	10/17/22 15:41	0-4'
890-3221-2	SW09	Solid	10/17/22 13:20	10/17/22 15:41	0-4'
890-3221-3	SW10	Solid	10/17/22 13:25	10/17/22 15:41	0-4'

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Park Hwy	Address:	3104 E Greene St.
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	kjennings@ensolum.com

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:	BED 29W Vader 1004H	Turn Around	
Project Number:	03E1558005	☑ Routine ☑ Rush	
Project Location:	32.561,-103.779	Due Date:	24hrs.
Sampler's Name:	Juliana Falcomata	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:	TAM-001
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

ANALYSIS REQUEST



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: Chlorides	Sample Comments
SW08	S	10-17-22	1315	0-4'	C	1	✓	Incident # NAPP2028331345
SW09	S	10-17-22	1320	0-4'	C	1	✓	
SW10	S	10-17-22	1325	0-4'	C	1	✓	Cost Center: 1568221001

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	Amanda Stuff	10/17/22 1541	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3221-1
SDG Number: 03E1558005

Login Number: 3221
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3221-1
SDG Number: 03E1558005

Login Number: 3221
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/19/22 01:08 PM

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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3254-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/24/2022 4:28:42 PM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3254-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Job ID: 890-3254-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3254-1

Receipt
The sample was received on 10/20/2022 4:22 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: SW10A (890-3254-1).

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: SW10A (890-3254-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA
Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37617 and analytical batch 880-37611 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.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Client Sample ID: SW10A

Date Collected: 10/20/22 13:40
Date Received: 10/20/22 16:22
Sample Depth: 0-4'

Lab Sample ID: 890-3254-1

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		10/21/22 14:15	10/24/22 12:37	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/21/22 14:15	10/24/22 12:37	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/21/22 14:15	10/24/22 12:37	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		10/21/22 14:15	10/24/22 12:37	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/21/22 14:15	10/24/22 12:37	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		10/21/22 14:15	10/24/22 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*133*	*S1+*	*70 - 130*	*10/21/22 14:15*	*10/24/22 12:37*	*1*
1,4-Difluorobenzene (Surr)	*85*		*70 - 130*	*10/21/22 14:15*	*10/24/22 12:37*	*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			10/24/22 16:38	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			10/24/22 17:18	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	<49.9	U	49.9		mg/Kg		10/24/22 08:52	10/24/22 12:40	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/24/22 08:52	10/24/22 12:40	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/24/22 08:52	10/24/22 12:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*77*		*70 - 130*	*10/24/22 08:52*	*10/24/22 12:40*	*1*
o-Terphenyl	*86*		*70 - 130*	*10/24/22 08:52*	*10/24/22 12:40*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**574**		5.04		mg/Kg			10/24/22 10:37	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

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)
890-3253-A-1-A MS	Matrix Spike	100	95
890-3253-A-1-B MSD	Matrix Spike Duplicate	97	72
890-3254-1	SW10A	133 S1+	85
LCS 880-37514/1-A	Lab Control Sample	96	89
LCSD 880-37514/2-A	Lab Control Sample Dup	95	81
MB 880-37514/5-A	Method Blank	107	77

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)
890-3253-A-1-H MS	Matrix Spike	95	92
890-3253-A-1-I MSD	Matrix Spike Duplicate	88	84
890-3254-1	SW10A	77	86
LCS 880-37617/2-A	Lab Control Sample	105	110
LCSD 880-37617/3-A	Lab Control Sample Dup	108	114
MB 880-37617/1-A	Method Blank	80	94

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37514/5-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37514

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*
1,4-Difluorobenzene (Surr)	*77*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*

Lab Sample ID: LCS 880-37514/1-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1046		mg/Kg		105	70 - 130		
Toluene			0.100	0.1066		mg/Kg		107	70 - 130		
Ethylbenzene			0.100	0.09931		mg/Kg		99	70 - 130		
m-Xylene & p-Xylene			0.200	0.2054		mg/Kg		103	70 - 130		
o-Xylene			0.100	0.1034		mg/Kg		103	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: LCSD 880-37514/2-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09576		mg/Kg		96	70 - 130	9	35
Toluene			0.100	0.09860		mg/Kg		99	70 - 130	8	35
Ethylbenzene			0.100	0.1009		mg/Kg		101	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1953		mg/Kg		98	70 - 130	5	35
o-Xylene			0.100	0.09779		mg/Kg		98	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*

Lab Sample ID: 890-3253-A-1-A MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.100	0.1004		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.100	0.1142		mg/Kg		109	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

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

Lab Sample ID: 890-3253-A-1-A MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.09592		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2008		mg/Kg		100	70 - 130
o-Xylene	<0.00201	U	0.100	0.1000		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3253-A-1-B MSD
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09485		mg/Kg		94	70 - 130	6	35
Toluene	<0.00201	U	0.0996	0.09849		mg/Kg		94	70 - 130	15	35
Ethylbenzene	<0.00201	U	0.0996	0.09498		mg/Kg		95	70 - 130	1	35
m-Xylene & p-Xylene	<0.00402	U	0.199	0.1982		mg/Kg		100	70 - 130	1	35
o-Xylene	<0.00201	U	0.0996	0.1021		mg/Kg		103	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*72*		*70 - 130*

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

Lab Sample ID: MB 880-37617/1-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37617

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		10/24/22 08:52	10/24/22 10:35	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*80*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*
o-Terphenyl	*94*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1169		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1015		mg/Kg		102	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	110		70 - 130

Lab Sample ID: LCSD 880-37617/3-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1158		mg/Kg		116	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130	0	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	108		70 - 130
o-Terphenyl	114		70 - 130

Lab Sample ID: 890-3253-A-1-H MS
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1543	F1	mg/Kg		151	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.8	U	998	812.7		mg/Kg		81	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	95		70 - 130
o-Terphenyl	92		70 - 130

Lab Sample ID: 890-3253-A-1-I MSD
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1075	F2	mg/Kg		104	70 - 130	36	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	782.1		mg/Kg		78	70 - 130	4	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	84		70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37576/1-A
Matrix: Solid
Analysis Batch: 37635

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			10/24/22 09:50	1

Lab Sample ID: LCS 880-37576/2-A
Matrix: Solid
Analysis Batch: 37635

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	265.4		mg/Kg		106	90 - 110		

Lab Sample ID: LCSD 880-37576/3-A
Matrix: Solid
Analysis Batch: 37635

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	265.0		mg/Kg		106	90 - 110	0	20

Lab Sample ID: 890-3253-A-1-E MS
Matrix: Solid
Analysis Batch: 37635

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	144		251	384.3		mg/Kg		96	90 - 110		

Lab Sample ID: 890-3253-A-1-F MSD
Matrix: Solid
Analysis Batch: 37635

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	144		251	384.6		mg/Kg		96	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

GC VOA

Prep Batch: 37514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Total/NA	Solid	5035	
MB 880-37514/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3253-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
890-3253-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Total/NA	Solid	8021B	37514
MB 880-37514/5-A	Method Blank	Total/NA	Solid	8021B	37514
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	8021B	37514
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37514
890-3253-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	37514
890-3253-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37514

Analysis Batch: 37720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Total/NA	Solid	8015B NM	37617
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015B NM	37617
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37617
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37617
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	37617
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37617

Prep Batch: 37617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Total/NA	Solid	8015NM Prep	
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Soluble	Solid	DI Leach	
MB 880-37576/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

HPLC/IC (Continued)

Leach Batch: 37576 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3253-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3254-1	SW10A	Soluble	Solid	300.0	37576
MB 880-37576/1-A	Method Blank	Soluble	Solid	300.0	37576
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	300.0	37576
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37576
890-3253-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	37576
890-3253-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37576

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Client Sample ID: SW10A

Date Collected: 10/20/22 13:40
Date Received: 10/20/22 16:22

Lab Sample ID: 890-3254-1

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			4.96 g	5 mL	37514	10/21/22 14:15	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37615	10/24/22 12:37	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37720	10/24/22 16:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			37733	10/24/22 17:18	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 12:40	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37576	10/24/22 09:30	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37635	10/24/22 10:37	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3254-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3254-1	SW10A	Solid	10/20/22 13:40	10/20/22 16:22	0-4'

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC.	Company Name:	XTO Energy, Inc.
Address:	601 Marienfeld St. Suite 400	Address:	3104 E. Green Street
City, State ZIP:	Midland TX, 79701	City, State ZIP:	Carlsbad, NM 88220
Phone:		Email:	kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	☐ Routine ☑ Rush
Project Number:	03E1558005	Due Date:	24 Hr.
Project Location:		TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Conner Shore		
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	TDM 007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.2	
Total Containers:		Corrected Temperature:	3.0	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SW10 A	S	10.20.22	1340	0-4'	C	1		X	X	X
CS										

ANALYSIS REQUEST — Parameters

890-3254 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2S0_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

Incident ID: NAPP2102831345

Cost Center:1568221001

AFE: EW.2022.07165.EXP.01

10.20.22

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	Amanda Stuff	10/20/22 1632	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3254-1
SDG Number: 03E1558005

Login Number: 3254
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3254-1
SDG Number: 03E1558005

Login Number: 3254
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/24/22 07:56 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3255-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/24/2022 4:28:49 PM

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

LINKS

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Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3255-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Job ID: 890-3255-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3255-1

Receipt
The sample was received on 10/20/2022 4:22 PM. 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 3.0°C

Receipt Exceptions
The following sample was received and analyzed from an unpreserved bulk soil jar: SW11A (890-3255-1).

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 matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37617 and analytical batch 880-37611 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.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Client Sample ID: SW11A

Date Collected: 10/20/22 14:00
Date Received: 10/20/22 16:22
Sample Depth: 0-4'

Lab Sample ID: 890-3255-1

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		10/21/22 14:15	10/24/22 12:58	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/21/22 14:15	10/24/22 12:58	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/21/22 14:15	10/24/22 12:58	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		10/21/22 14:15	10/24/22 12:58	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/21/22 14:15	10/24/22 12:58	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		10/21/22 14:15	10/24/22 12:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*126*		*70 - 130*	*10/21/22 14:15*	*10/24/22 12:58*	*1*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*	*10/21/22 14:15*	*10/24/22 12:58*	*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			10/24/22 16:38	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			10/24/22 17:18	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		10/24/22 08:52	10/24/22 13:01	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/24/22 08:52	10/24/22 13:01	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/24/22 08:52	10/24/22 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*74*		*70 - 130*	*10/24/22 08:52*	*10/24/22 13:01*	*1*
o-Terphenyl	*84*		*70 - 130*	*10/24/22 08:52*	*10/24/22 13:01*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**338**		4.99		mg/Kg			10/24/22 10:42	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

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)
890-3253-A-1-A MS	Matrix Spike	100	95
890-3253-A-1-B MSD	Matrix Spike Duplicate	97	72
890-3255-1	SW11A	126	90
LCS 880-37514/1-A	Lab Control Sample	96	89
LCSD 880-37514/2-A	Lab Control Sample Dup	95	81
MB 880-37514/5-A	Method Blank	107	77

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)
890-3253-A-1-H MS	Matrix Spike	95	92
890-3253-A-1-I MSD	Matrix Spike Duplicate	88	84
890-3255-1	SW11A	74	84
LCS 880-37617/2-A	Lab Control Sample	105	110
LCSD 880-37617/3-A	Lab Control Sample Dup	108	114
MB 880-37617/1-A	Method Blank	80	94

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37514/5-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37514

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/21/22 14:15	10/24/22 10:42	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/21/22 14:15	10/24/22 10:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*
1,4-Difluorobenzene (Surr)	*77*		*70 - 130*	*10/21/22 14:15*	*10/24/22 10:42*	*1*

Lab Sample ID: LCS 880-37514/1-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1046		mg/Kg		105	70 - 130		
Toluene			0.100	0.1066		mg/Kg		107	70 - 130		
Ethylbenzene			0.100	0.09931		mg/Kg		99	70 - 130		
m-Xylene & p-Xylene			0.200	0.2054		mg/Kg		103	70 - 130		
o-Xylene			0.100	0.1034		mg/Kg		103	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: LCSD 880-37514/2-A
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37514

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.09576		mg/Kg		96	70 - 130	9	35
Toluene			0.100	0.09860		mg/Kg		99	70 - 130	8	35
Ethylbenzene			0.100	0.1009		mg/Kg		101	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1953		mg/Kg		98	70 - 130	5	35
o-Xylene			0.100	0.09779		mg/Kg		98	70 - 130	6	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*

Lab Sample ID: 890-3253-A-1-A MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00201	U	0.100	0.1004		mg/Kg		99	70 - 130		
Toluene	<0.00201	U	0.100	0.1142		mg/Kg		109	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

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

Lab Sample ID: 890-3253-A-1-A MS
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00201	U	0.100	0.09592		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.200	0.2008		mg/Kg		100	70 - 130
o-Xylene	<0.00201	U	0.100	0.1000		mg/Kg		100	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 890-3253-A-1-B MSD
Matrix: Solid
Analysis Batch: 37615

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.0996	0.09485		mg/Kg		94	70 - 130	6	35
Toluene	<0.00201	U	0.0996	0.09849		mg/Kg		94	70 - 130	15	35
Ethylbenzene	<0.00201	U	0.0996	0.09498		mg/Kg		95	70 - 130	1	35
m-Xylene & p-Xylene	<0.00402	U	0.199	0.1982		mg/Kg		100	70 - 130	1	35
o-Xylene	<0.00201	U	0.0996	0.1021		mg/Kg		103	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*72*		*70 - 130*

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

Lab Sample ID: MB 880-37617/1-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37617

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		10/24/22 08:52	10/24/22 10:35	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/24/22 08:52	10/24/22 10:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*80*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*
o-Terphenyl	*94*		*70 - 130*	*10/24/22 08:52*	*10/24/22 10:35*	*1*

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1169		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1015		mg/Kg		102	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-37617/2-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37617

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*105*		*70 - 130*
o-Terphenyl	*110*		*70 - 130*

Lab Sample ID: LCSD 880-37617/3-A
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37617

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1158		mg/Kg		116	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*108*		*70 - 130*
o-Terphenyl	*114*		*70 - 130*

Lab Sample ID: 890-3253-A-1-H MS
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1543	F1	mg/Kg		151	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	812.7		mg/Kg		81	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*95*		*70 - 130*
o-Terphenyl	*92*		*70 - 130*

Lab Sample ID: 890-3253-A-1-I MSD
Matrix: Solid
Analysis Batch: 37611

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37617

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 F1 F2	998	1075	F2	mg/Kg		104	70 - 130	36	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	782.1		mg/Kg		78	70 - 130	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*88*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37576/1-A
Matrix: Solid
Analysis Batch: 37635

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			10/24/22 09:50	1

Lab Sample ID: LCS 880-37576/2-A
Matrix: Solid
Analysis Batch: 37635

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	265.4		mg/Kg		106	90 - 110		

Lab Sample ID: LCSD 880-37576/3-A
Matrix: Solid
Analysis Batch: 37635

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	265.0		mg/Kg		106	90 - 110	0	20

Lab Sample ID: 890-3253-A-1-E MS
Matrix: Solid
Analysis Batch: 37635

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	144		251	384.3		mg/Kg		96	90 - 110		

Lab Sample ID: 890-3253-A-1-F MSD
Matrix: Solid
Analysis Batch: 37635

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	144		251	384.6		mg/Kg		96	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

GC VOA

Prep Batch: 37514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Total/NA	Solid	5035	
MB 880-37514/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3253-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
890-3253-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Total/NA	Solid	8021B	37514
MB 880-37514/5-A	Method Blank	Total/NA	Solid	8021B	37514
LCS 880-37514/1-A	Lab Control Sample	Total/NA	Solid	8021B	37514
LCSD 880-37514/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37514
890-3253-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	37514
890-3253-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37514

Analysis Batch: 37721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Total/NA	Solid	8015B NM	37617
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015B NM	37617
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37617
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37617
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	37617
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37617

Prep Batch: 37617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Total/NA	Solid	8015NM Prep	
MB 880-37617/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37617/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37617/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3253-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3253-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37576

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Soluble	Solid	DI Leach	
MB 880-37576/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

HPLC/IC (Continued)

Leach Batch: 37576 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3253-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3253-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3255-1	SW11A	Soluble	Solid	300.0	37576
MB 880-37576/1-A	Method Blank	Soluble	Solid	300.0	37576
LCS 880-37576/2-A	Lab Control Sample	Soluble	Solid	300.0	37576
LCSD 880-37576/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37576
890-3253-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	37576
890-3253-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37576

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Client Sample ID: SW11A

Date Collected: 10/20/22 14:00
Date Received: 10/20/22 16:22

Lab Sample ID: 890-3255-1

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	37514	10/21/22 14:15	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37615	10/24/22 12:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37721	10/24/22 16:38	SM	EET MID
Total/NA	Analysis	8015 NM		1			37734	10/24/22 17:18	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37617	10/24/22 08:52	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37611	10/24/22 13:01	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37576	10/24/22 09:30	SMC	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37635	10/24/22 10:42	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3255-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3255-1	SW11A	Solid	10/20/22 14:00	10/20/22 16:22	0-4'

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10/24/2022

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC.	Company Name:	XTO Energy, Inc.
Address:	601 Marienfeld St. Suite 400	Address:	3104 E. Green Street
City, State ZIP:	Midland TX, 79701	City, State ZIP:	Carlsbad, NM 88220
Phone:	Email:	kjennings@ensolum.com	

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☐ Routine ☑ Rush	
Project Location:		Due Date:	24 Hr.
Sampler's Name:	Conner Shore	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:	IR#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:		Corrected Temperature:	3.0	

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2S0_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	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SW11A CS	S	10.20.22	1400	0-4'	C	1		X	X	X

Parameters

ANALYSIS REQUEST

890-3255 Chain of Custody

Sample Comments

Incident ID: NAPP2102831345
Cost Center:1568221001
AFE: EW.2022.07165.EXP.01

10.20.22

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
	Amanda Stigl	10/20/22 1622			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

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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: _____

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Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum LLC.	Company Name:	XTO Energy, Inc.
Address:	601 Marienfeld St. Suite 400	Address:	3104 E. Green Street
City, State ZIP:	Midland TX, 79701	City, State ZIP:	Carlsbad, NM 88220
Phone:	Email:	kjennings@ensolum.com	

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☐ Routine ☑ Rush	
Project Location:		Due Date:	24 Hr.
Sampler's Name:	Conner Shore	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:	TDM 007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	3.2	
Total Containers:		Corrected Temperature:	3.0	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	CHLORIDES (EPA: 300.0)	TPH (8015)	BTEX (8021)
SW10 (C)	S	10.20.22	1340	0-4'	C	1		X	X	X

890-3254 Chain of Custody

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2S0_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

Incident ID: NAPP2102831345
Cost Center:1568221001
AFE: EW.2022.07165.EXP.01

10.20.22

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	Amanda Stuff	10/20/22 1632	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Received by OCD: 1/4/2023 9:11:12 AM

Released to Imaging: 1/30/2023 3:38:36 PM

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3255-1
SDG Number: 03E1558005

Login Number: 3255
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3255-1
SDG Number: 03E1558005

Login Number: 3255
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/24/22 07:56 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3227-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU N29W VADER 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/21/2022 1:52:57 PM

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

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Laboratory Job ID: 890-3227-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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

Glossary

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

Case Narrative

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Job ID: 890-3227-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3227-1

Receipt
The samples were received on 10/18/2022 4:19 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.8°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SW15 (890-3227-1) and SW16 (890-3227-2).

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-37395 and analytical batch 880-37351 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-20550-A-2-D). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SW15 (890-3227-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA
Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-37354 and analytical batch 880-37357 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 8015MOD_NM: The surrogate recovery for the blank associated with preparation batch 880-37354 and analytical batch 880-37357 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: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Client Sample ID: SW15

Date Collected: 10/18/22 15:15
Date Received: 10/18/22 16:19
Sample Depth: 0 - 4

Lab Sample ID: 890-3227-1
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		10/21/22 11:55	10/21/22 13:46	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/21/22 11:55	10/21/22 13:46	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/21/22 11:55	10/21/22 13:46	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/21/22 11:55	10/21/22 13:46	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/21/22 11:55	10/21/22 13:46	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/21/22 11:55	10/21/22 13:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*132*	*S1+*	*70 - 130*	*10/21/22 11:55*	*10/21/22 13:46*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*10/21/22 11:55*	*10/21/22 13:46*	*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			10/21/22 14:19	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			10/21/22 09:30	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		10/20/22 08:19	10/20/22 18:14	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/20/22 08:19	10/20/22 18:14	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/20/22 08:19	10/20/22 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*106*		*70 - 130*	*10/20/22 08:19*	*10/20/22 18:14*	*1*
o-Terphenyl	*107*		*70 - 130*	*10/20/22 08:19*	*10/20/22 18:14*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**68.2**		5.02		mg/Kg			10/20/22 15:56	1

Client Sample ID: SW16

Date Collected: 10/18/22 15:20
Date Received: 10/18/22 16:19
Sample Depth: 0 - 4

Lab Sample ID: 890-3227-2
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		10/20/22 10:51	10/20/22 23:58	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/20/22 10:51	10/20/22 23:58	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/20/22 10:51	10/20/22 23:58	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		10/20/22 10:51	10/20/22 23:58	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/20/22 10:51	10/20/22 23:58	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		10/20/22 10:51	10/20/22 23:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*	*10/20/22 10:51*	*10/20/22 23:58*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Client Sample ID: SW16

Date Collected: 10/18/22 15:20
Date Received: 10/18/22 16:19
Sample Depth: 0 - 4

Lab Sample ID: 890-3227-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/20/22 10:51*	*10/20/22 23:58*	*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			10/21/22 13:44	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			10/21/22 09:30	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		10/20/22 08:19	10/20/22 18:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/20/22 08:19	10/20/22 18:36	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/20/22 08:19	10/20/22 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*10/20/22 08:19*	*10/20/22 18:36*	*1*
o-Terphenyl	*98*		*70 - 130*	*10/20/22 08:19*	*10/20/22 18:36*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**566**		25.2		mg/Kg			10/20/22 16:05	5

Surrogate Summary

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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)
880-20550-A-2-F MS	Matrix Spike	98	89
880-20550-A-2-G MSD	Matrix Spike Duplicate	90	88
890-3227-1	SW15	132 S1+	86
890-3227-2	SW16	116	93
890-3227-A-1-B MS	890-3227-A-1-B MS	98	91
890-3227-A-1-C MSD	890-3227-A-1-C MSD	94	89
LCS 880-37395/1-A	Lab Control Sample	89	89
LCS 880-37402/1-A	Lab Control Sample	86	92
LCSD 880-37395/2-A	Lab Control Sample Dup	89	89
LCSD 880-37402/2-A	Lab Control Sample Dup	92	91
MB 880-37154/5-A	Method Blank	98	85
MB 880-37395/5-A	Method Blank	101	89
MB 880-37402/5-A	Method Blank	105	86

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)
880-20551-A-1-C MS	Matrix Spike	86	72
880-20551-A-1-D MSD	Matrix Spike Duplicate	78	75
890-3227-1	SW15	106	107
890-3227-2	SW16	94	98
LCS 880-37354/2-A	Lab Control Sample	83	82
LCSD 880-37354/3-A	Lab Control Sample Dup	90	77
MB 880-37354/1-A	Method Blank	133 S1+	137 S1+

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37154/5-A
Matrix: Solid
Analysis Batch: 37351

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37154

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/17/22 12:38	10/20/22 10:51	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/17/22 12:38	10/20/22 10:51	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/17/22 12:38	10/20/22 10:51	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/17/22 12:38	10/20/22 10:51	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/17/22 12:38	10/20/22 10:51	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/17/22 12:38	10/20/22 10:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*	*10/17/22 12:38*	*10/20/22 10:51*	*1*
1,4-Difluorobenzene (Surr)	*85*		*70 - 130*	*10/17/22 12:38*	*10/20/22 10:51*	*1*

Lab Sample ID: MB 880-37395/5-A
Matrix: Solid
Analysis Batch: 37351

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37395

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/20/22 10:51	10/20/22 22:56	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/20/22 10:51	10/20/22 22:56	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/20/22 10:51	10/20/22 22:56	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/20/22 10:51	10/20/22 22:56	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/20/22 10:51	10/20/22 22:56	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/20/22 10:51	10/20/22 22:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*10/20/22 10:51*	*10/20/22 22:56*	*1*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*	*10/20/22 10:51*	*10/20/22 22:56*	*1*

Lab Sample ID: LCS 880-37395/1-A
Matrix: Solid
Analysis Batch: 37351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37395

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.1048		mg/Kg		105	70 - 130		
Toluene			0.100	0.1036		mg/Kg		104	70 - 130		
Ethylbenzene			0.100	0.09489		mg/Kg		95	70 - 130		
m-Xylene & p-Xylene			0.200	0.1975		mg/Kg		99	70 - 130		
o-Xylene			0.100	0.09975		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: LCSD 880-37395/2-A
Matrix: Solid
Analysis Batch: 37351

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37395

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1005		mg/Kg		100	70 - 130	4	35

QC Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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

Lab Sample ID: LCSD 880-37395/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37351 — **Prep Batch: 37395**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene			0.100	0.1006		mg/Kg		101	70 - 130	3	35
Ethylbenzene			0.100	0.09294		mg/Kg		93	70 - 130	2	35
m-Xylene & p-Xylene			0.200	0.1937		mg/Kg		97	70 - 130	2	35
o-Xylene			0.100	0.09799		mg/Kg		98	70 - 130	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*89*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: 890-3227-A-1-B MS — **Client Sample ID: 890-3227-A-1-B MS**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37351 — **Prep Batch: 37395**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0235	F1	0.101	0.07213	F1	mg/Kg		48	70 - 130
Toluene	0.0107	F1	0.101	0.06390	F1	mg/Kg		53	70 - 130
Ethylbenzene	0.0546	F1	0.101	0.05122	F1	mg/Kg		-3	70 - 130
m-Xylene & p-Xylene	0.00897	F1	0.201	0.1052	F1	mg/Kg		48	70 - 130
o-Xylene	0.00580	F1	0.101	0.05789	F1	mg/Kg		52	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: 890-3227-A-1-C MSD — **Client Sample ID: 890-3227-A-1-C MSD**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37351 — **Prep Batch: 37395**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.0235	F1	0.0994	0.06785	F1	mg/Kg		45	70 - 130	6	35
Toluene	0.0107	F1	0.0994	0.06453	F1	mg/Kg		54	70 - 130	1	35
Ethylbenzene	0.0546	F1	0.0994	0.05476	F1	mg/Kg		0.2	70 - 130	7	35
m-Xylene & p-Xylene	0.00897	F1	0.199	0.1090	F1	mg/Kg		50	70 - 130	4	35
o-Xylene	0.00580	F1	0.0994	0.05778	F1	mg/Kg		52	70 - 130	0	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: MB 880-37402/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37452 — **Prep Batch: 37402**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/20/22 11:40	10/21/22 11:18	1

QC Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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

Lab Sample ID: MB 880-37402/5-A
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37402

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/20/22 11:40	10/21/22 11:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*10/20/22 11:40*	*10/21/22 11:18*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*10/20/22 11:40*	*10/21/22 11:18*	*1*

Lab Sample ID: LCS 880-37402/1-A
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37402

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09837		mg/Kg		98	70 - 130		
Toluene			0.100	0.09917		mg/Kg		99	70 - 130		
Ethylbenzene			0.100	0.09313		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1925		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09576		mg/Kg		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*

Lab Sample ID: LCSD 880-37402/2-A
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37402

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1096		mg/Kg		110	70 - 130	11	35
Toluene			0.100	0.1114		mg/Kg		111	70 - 130	12	35
Ethylbenzene			0.100	0.1025		mg/Kg		103	70 - 130	10	35
m-Xylene & p-Xylene			0.200	0.2150		mg/Kg		108	70 - 130	11	35
o-Xylene			0.100	0.1082		mg/Kg		108	70 - 130	12	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: 880-20550-A-2-F MS
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37402

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.0998	0.09506		mg/Kg		95	70 - 130		
Toluene	<0.00199	U	0.0998	0.09654		mg/Kg		97	70 - 130		
Ethylbenzene	<0.00199	U	0.0998	0.1087		mg/Kg		109	70 - 130		
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2073		mg/Kg		104	70 - 130		
o-Xylene	<0.00199	U	0.0998	0.09653		mg/Kg		97	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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

Lab Sample ID: 880-20550-A-2-F MS
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37402

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: 880-20550-A-2-G MSD
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37402

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.09653		mg/Kg		96	70 - 130	2	35
Toluene	<0.00199	U	0.100	0.09427		mg/Kg		94	70 - 130	2	35
Ethylbenzene	<0.00199	U	0.100	0.08381		mg/Kg		84	70 - 130	26	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1753		mg/Kg		87	70 - 130	17	35
o-Xylene	<0.00199	U	0.100	0.08592		mg/Kg		86	70 - 130	12	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*

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

Lab Sample ID: MB 880-37354/1-A
Matrix: Solid
Analysis Batch: 37357

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37354

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		10/20/22 08:19	10/20/22 11:03	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/20/22 08:19	10/20/22 11:03	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/20/22 08:19	10/20/22 11:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	*133*	*S1+*	*70 - 130*	*10/20/22 08:19*	*10/20/22 11:03*	*1*
o-Terphenyl	*137*	*S1+*	*70 - 130*	*10/20/22 08:19*	*10/20/22 11:03*	*1*

Lab Sample ID: LCS 880-37354/2-A
Matrix: Solid
Analysis Batch: 37357

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37354

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	900.4		mg/Kg		90	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	843.9		mg/Kg		84	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	*83*		*70 - 130*
o-Terphenyl	*82*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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

Lab Sample ID: LCSD 880-37354/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37357 — **Prep Batch: 37354**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	904.5		mg/Kg		90	70 - 130	0	20
Diesel Range Organics (Over C10-C28)			1000	846.0		mg/Kg		85	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*90*		*70 - 130*
o-Terphenyl	*77*		*70 - 130*

Lab Sample ID: 880-20551-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37357 — **Prep Batch: 37354**

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 F1 F2	998	703.0	F1	mg/Kg		69	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U	998	830.9		mg/Kg		83	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*86*		*70 - 130*
o-Terphenyl	*72*		*70 - 130*

Lab Sample ID: 880-20551-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 37357 — **Prep Batch: 37354**

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 F1 F2	998	927.0	F2	mg/Kg		91	70 - 130	27	20
Diesel Range Organics (Over C10-C28)	<49.8	U	998	894.0		mg/Kg		90	70 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*78*		*70 - 130*
o-Terphenyl	*75*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37268/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 37411

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/20/22 13:09	1

QC Sample Results

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-37268/2-A
Matrix: Solid
Analysis Batch: 37411

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	237.5		mg/Kg		95	90 - 110		

Lab Sample ID: LCSD 880-37268/3-A
Matrix: Solid
Analysis Batch: 37411

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	249.1		mg/Kg		100	90 - 110	5	20

Lab Sample ID: 880-20475-A-1-B MS
Matrix: Solid
Analysis Batch: 37411

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	625		251	863.6		mg/Kg		95	90 - 110		

Lab Sample ID: 880-20475-A-1-C MSD
Matrix: Solid
Analysis Batch: 37411

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	625		251	857.6		mg/Kg		93	90 - 110	1	20

Lab Sample ID: 890-3225-A-1-E MS
Matrix: Solid
Analysis Batch: 37411

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	3320		2480	5711		mg/Kg		96	90 - 110		

Lab Sample ID: 890-3225-A-1-F MSD
Matrix: Solid
Analysis Batch: 37411

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	3320		2480	5747		mg/Kg		98	90 - 110	1	20

QC Association Summary

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

GC VOA

Prep Batch: 37154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-37154/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 37351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-2	SW16	Total/NA	Solid	8021B	37395
MB 880-37154/5-A	Method Blank	Total/NA	Solid	8021B	37154
MB 880-37395/5-A	Method Blank	Total/NA	Solid	8021B	37395
LCS 880-37395/1-A	Lab Control Sample	Total/NA	Solid	8021B	37395
LCSD 880-37395/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37395
890-3227-A-1-B MS	890-3227-A-1-B MS	Total/NA	Solid	8021B	37395
890-3227-A-1-C MSD	890-3227-A-1-C MSD	Total/NA	Solid	8021B	37395

Prep Batch: 37395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-2	SW16	Total/NA	Solid	5035	
MB 880-37395/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37395/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37395/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3227-A-1-B MS	890-3227-A-1-B MS	Total/NA	Solid	5035	
890-3227-A-1-C MSD	890-3227-A-1-C MSD	Total/NA	Solid	5035	

Prep Batch: 37402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Total/NA	Solid	5035	
MB 880-37402/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37402/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37402/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20550-A-2-F MS	Matrix Spike	Total/NA	Solid	5035	
880-20550-A-2-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Total/NA	Solid	8021B	37402
MB 880-37402/5-A	Method Blank	Total/NA	Solid	8021B	37402
LCS 880-37402/1-A	Lab Control Sample	Total/NA	Solid	8021B	37402
LCSD 880-37402/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37402
880-20550-A-2-F MS	Matrix Spike	Total/NA	Solid	8021B	37402
880-20550-A-2-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37402

Analysis Batch: 37496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Total/NA	Solid	Total BTEX	
890-3227-2	SW16	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 37354

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Total/NA	Solid	8015NM Prep	
890-3227-2	SW16	Total/NA	Solid	8015NM Prep	
MB 880-37354/1-A	Method Blank	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

GC Semi VOA (Continued)

Prep Batch: 37354 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-37354/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-37354/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-20551-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-20551-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Total/NA	Solid	8015B NM	37354
890-3227-2	SW16	Total/NA	Solid	8015B NM	37354
MB 880-37354/1-A	Method Blank	Total/NA	Solid	8015B NM	37354
LCS 880-37354/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37354
LCSD 880-37354/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37354
880-20551-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	37354
880-20551-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	37354

Analysis Batch: 37458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Total/NA	Solid	8015 NM	
890-3227-2	SW16	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Soluble	Solid	DI Leach	
890-3227-2	SW16	Soluble	Solid	DI Leach	
MB 880-37268/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37268/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37268/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-20475-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-20475-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
890-3225-A-1-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3225-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3227-1	SW15	Soluble	Solid	300.0	37268
890-3227-2	SW16	Soluble	Solid	300.0	37268
MB 880-37268/1-A	Method Blank	Soluble	Solid	300.0	37268
LCS 880-37268/2-A	Lab Control Sample	Soluble	Solid	300.0	37268
LCSD 880-37268/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37268
880-20475-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	37268
880-20475-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37268
890-3225-A-1-E MS	Matrix Spike	Soluble	Solid	300.0	37268
890-3225-A-1-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37268

Lab Chronicle

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Client Sample ID: SW15
Date Collected: 10/18/22 15:15
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3227-1
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	37402	10/21/22 11:55	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37452	10/21/22 13:46	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37496	10/21/22 14:19	SM	EET MID
Total/NA	Analysis	8015 NM		1			37458	10/21/22 09:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37354	10/20/22 08:19	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37357	10/20/22 18:14	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	37268	10/20/22 12:00	KS	EET MID
Soluble	Analysis	300.0		1	50 mL	50 mL	37411	10/20/22 15:56	CH	EET MID

Client Sample ID: SW16
Date Collected: 10/18/22 15:20
Date Received: 10/18/22 16:19

Lab Sample ID: 890-3227-2
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			4.95 g	5 mL	37395	10/20/22 10:51	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37351	10/20/22 23:58	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37496	10/21/22 13:44	SM	EET MID
Total/NA	Analysis	8015 NM		1			37458	10/21/22 09:30	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	37354	10/20/22 08:19	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37357	10/20/22 18:36	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37268	10/20/22 12:00	KS	EET MID
Soluble	Analysis	300.0		5	50 mL	50 mL	37411	10/20/22 16:05	CH	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU N29W VADER 100H

Job ID: 890-3227-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3227-1	SW15	Solid	10/18/22 15:15	10/18/22 16:19	0 - 4
890-3227-2	SW16	Solid	10/18/22 15:20	10/18/22 16:19	0 - 4

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

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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: _____

www.xenco.com Page 1 of 1

Project Manager:	Kalei Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nat'l Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503	Email:	kjennings@ensolum.com

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:	Beuzley Vader 100H	Turn Around	☐ Routine ☑ Rush
Project Number:	03E1558005	Due Date:	2 day
Project Location:	32.567, -103.779	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	Meredith Roberts		
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	Yes No	Thermometer ID:	IR#007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	4.6
Total Containers:		Corrected Temperature:	3.8

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Chlorides	BTEX	TPH	
SW15	S	10/18/22	1515	0-4'	C	1	X	X	X	
SW16	S	10/18/22	1520	0-4'	C	1	X	X	X	

NR

890-3227 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 Comments

Incident#:
NAPP2102831345

Cost Center:
1568221001

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		10.18.22 1619	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3227-1
SDG Number: 03E1558005

Login Number: 3227
List Number: 1
Creator: Clifton, Cloe

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: Ensolum

Job Number: 890-3227-1
SDG Number: 03E1558005

Login Number: 3227
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/20/22 10:49 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

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-3235-1
Laboratory Sample Delivery Group: 03E1558005
Client Project/Site: BEU 29W Vader 100H

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

JKramer

Authorized for release by:
10/21/2022 4:28:03 PM

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

LINKS
Review your project results through my EOL
Have a Question? Ask The Expert
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Laboratory Job ID: 890-3235-1
SDG: 03E1558005

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Definitions/Glossary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Qualifiers

GC VOA

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

GC Semi VOA

Qualifier	Qualifier Description
F2	MS/MSD RPD exceeds control limits
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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Job ID: 890-3235-1

Laboratory: Eurofins Carlsbad

Narrative

Job Narrative
890-3235-1

Receipt
The samples were received on 10/20/2022 9:38 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 3.6°C

Receipt Exceptions
The following samples were received and analyzed from an unpreserved bulk soil jar: SW17 (890-3235-1), SW18 (890-3235-2), SW19 (890-3235-3) and SW20 (890-3235-4).

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-20550-A-2-D). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: Surrogate recovery for the following sample was outside control limits: SW20 (890-3235-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA
Method 8015MOD_NM: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 880-37447 and analytical batch 880-37438 was outside control limits. Sample non-homogeneity is suspected.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Client Sample ID: SW17

Date Collected: 10/19/22 16:05
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

Lab Sample ID: 890-3235-1
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		10/21/22 11:55	10/21/22 12:23	1
Toluene	<0.00201	U	0.00201		mg/Kg		10/21/22 11:55	10/21/22 12:23	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		10/21/22 11:55	10/21/22 12:23	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		10/21/22 11:55	10/21/22 12:23	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		10/21/22 11:55	10/21/22 12:23	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		10/21/22 11:55	10/21/22 12:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*	*10/21/22 11:55*	*10/21/22 12:23*	*1*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*	*10/21/22 11:55*	*10/21/22 12:23*	*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			10/21/22 14:19	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			10/21/22 15:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/21/22 07:39	10/21/22 11:31	1
Diesel Range Organics (Over C10-C28)	<49.8	U F2	49.8		mg/Kg		10/21/22 07:39	10/21/22 11:31	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/21/22 07:39	10/21/22 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*74*		*70 - 130*	*10/21/22 07:39*	*10/21/22 11:31*	*1*
o-Terphenyl	*97*		*70 - 130*	*10/21/22 07:39*	*10/21/22 11:31*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**436**		4.99		mg/Kg			10/21/22 16:03	1

Client Sample ID: SW18

Date Collected: 10/19/22 16:50
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

Lab Sample ID: 890-3235-2
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		10/21/22 11:55	10/21/22 12:44	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 12:44	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 12:44	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/21/22 11:55	10/21/22 12:44	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 12:44	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/21/22 11:55	10/21/22 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*	*10/21/22 11:55*	*10/21/22 12:44*	*1*

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Client Sample ID: SW18

Date Collected: 10/19/22 16:50
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

Lab Sample ID: 890-3235-2

Matrix: Solid

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*	*10/21/22 11:55*	*10/21/22 12:44*	*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			10/21/22 14:19	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			10/21/22 15:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		10/21/22 07:39	10/21/22 12:35	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		10/21/22 07:39	10/21/22 12:35	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/21/22 07:39	10/21/22 12:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*82*		*70 - 130*	*10/21/22 07:39*	*10/21/22 12:35*	*1*
o-Terphenyl	*77*		*70 - 130*	*10/21/22 07:39*	*10/21/22 12:35*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**332**		5.03	mg/Kg			10/21/22 16:08	1

Client Sample ID: SW19

Date Collected: 10/19/22 16:55
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

Lab Sample ID: 890-3235-3

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		10/21/22 11:55	10/21/22 13:05	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/21/22 11:55	10/21/22 13:05	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/21/22 11:55	10/21/22 13:05	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		10/21/22 11:55	10/21/22 13:05	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/21/22 11:55	10/21/22 13:05	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		10/21/22 11:55	10/21/22 13:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*126*		*70 - 130*	*10/21/22 11:55*	*10/21/22 13:05*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*10/21/22 11:55*	*10/21/22 13:05*	*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			10/21/22 14:19	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			10/21/22 15:26	1

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Client Sample ID: SW19

Lab Sample ID: 890-3235-3
Matrix: Solid

Date Collected: 10/19/22 16:55
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		10/21/22 07:39	10/21/22 12:57	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		10/21/22 07:39	10/21/22 12:57	1
OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/21/22 07:39	10/21/22 12:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*10/21/22 07:39*	*10/21/22 12:57*	*1*
o-Terphenyl	*93*		*70 - 130*	*10/21/22 07:39*	*10/21/22 12:57*	*1*

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**469**		5.04		mg/Kg			10/21/22 16:13	1

Client Sample ID: SW20

Lab Sample ID: 890-3235-4
Matrix: Solid

Date Collected: 10/19/22 16:20
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 13:25	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 13:25	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 13:25	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/21/22 11:55	10/21/22 13:25	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/21/22 11:55	10/21/22 13:25	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/21/22 11:55	10/21/22 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*135*	*S1+*	*70 - 130*	*10/21/22 11:55*	*10/21/22 13:25*	*1*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*	*10/21/22 11:55*	*10/21/22 13:25*	*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			10/21/22 14:19	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			10/21/22 15:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		10/21/22 07:39	10/21/22 13:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		10/21/22 07:39	10/21/22 13:19	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/21/22 07:39	10/21/22 13:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*93*		*70 - 130*	*10/21/22 07:39*	*10/21/22 13:19*	*1*
o-Terphenyl	*96*		*70 - 130*	*10/21/22 07:39*	*10/21/22 13:19*	*1*

Client Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Client Sample ID: SW20
Date Collected: 10/19/22 16:20
Date Received: 10/20/22 09:38
Sample Depth: 0-4'

Lab Sample ID: 890-3235-4
Matrix: Solid

Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	107		4.97		mg/Kg			10/21/22 16:18	1

Surrogate Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

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)
880-20550-A-2-F MS	Matrix Spike	98	89
880-20550-A-2-G MSD	Matrix Spike Duplicate	90	88
890-3235-1	SW17	108	93
890-3235-2	SW18	124	103
890-3235-3	SW19	126	98
890-3235-4	SW20	135 S1+	92
LCS 880-37402/1-A	Lab Control Sample	86	92
LCSD 880-37402/2-A	Lab Control Sample Dup	92	91
MB 880-37402/5-A	Method Blank	105	86

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)
890-3235-1	SW17	74	97
890-3235-1 MS	SW17	106	100
890-3235-1 MSD	SW17	103	75
890-3235-2	SW18	82	77
890-3235-3	SW19	93	93
890-3235-4	SW20	93	96
LCS 880-37447/2-A	Lab Control Sample	113	122
LCSD 880-37447/3-A	Lab Control Sample Dup	93	104
MB 880-37447/1-A	Method Blank	114	120

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-37402/5-A
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37402

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/20/22 11:40	10/21/22 11:18	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/20/22 11:40	10/21/22 11:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*	*10/20/22 11:40*	*10/21/22 11:18*	*1*
1,4-Difluorobenzene (Surr)	*86*		*70 - 130*	*10/20/22 11:40*	*10/21/22 11:18*	*1*

Lab Sample ID: LCS 880-37402/1-A
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37402

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.100	0.09837		mg/Kg		98	70 - 130		
Toluene			0.100	0.09917		mg/Kg		99	70 - 130		
Ethylbenzene			0.100	0.09313		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			0.200	0.1925		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09576		mg/Kg		96	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*86*		*70 - 130*
1,4-Difluorobenzene (Surr)	*92*		*70 - 130*

Lab Sample ID: LCSD 880-37402/2-A
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37402

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene			0.100	0.1096		mg/Kg		110	70 - 130	11	35
Toluene			0.100	0.1114		mg/Kg		111	70 - 130	12	35
Ethylbenzene			0.100	0.1025		mg/Kg		103	70 - 130	10	35
m-Xylene & p-Xylene			0.200	0.2150		mg/Kg		108	70 - 130	11	35
o-Xylene			0.100	0.1082		mg/Kg		108	70 - 130	12	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
1,4-Difluorobenzene (Surr)	*91*		*70 - 130*

Lab Sample ID: 880-20550-A-2-F MS
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37402

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	<0.00199	U	0.0998	0.09506		mg/Kg		95	70 - 130		
Toluene	<0.00199	U	0.0998	0.09654		mg/Kg		97	70 - 130		

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

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

Lab Sample ID: 880-20550-A-2-F MS
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 37402

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethylbenzene	<0.00199	U	0.0998	0.1087		mg/Kg		109	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.200	0.2073		mg/Kg		104	70 - 130
o-Xylene	<0.00199	U	0.0998	0.09653		mg/Kg		97	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*89*		*70 - 130*

Lab Sample ID: 880-20550-A-2-G MSD
Matrix: Solid
Analysis Batch: 37452

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 37402

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00199	U	0.100	0.09653		mg/Kg		96	70 - 130	2	35
Toluene	<0.00199	U	0.100	0.09427		mg/Kg		94	70 - 130	2	35
Ethylbenzene	<0.00199	U	0.100	0.08381		mg/Kg		84	70 - 130	26	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1753		mg/Kg		87	70 - 130	17	35
o-Xylene	<0.00199	U	0.100	0.08592		mg/Kg		86	70 - 130	12	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*70 - 130*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*

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

Lab Sample ID: MB 880-37447/1-A
Matrix: Solid
Analysis Batch: 37438

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 37447

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		10/21/22 07:39	10/21/22 08:44	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/21/22 07:39	10/21/22 08:44	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/21/22 07:39	10/21/22 08:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*10/21/22 07:39*	*10/21/22 08:44*	*1*
o-Terphenyl	*120*		*70 - 130*	*10/21/22 07:39*	*10/21/22 08:44*	*1*

Lab Sample ID: LCS 880-37447/2-A
Matrix: Solid
Analysis Batch: 37438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37447

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10			1000	1010		mg/Kg		101	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1199		mg/Kg		120	70 - 130

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

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

Lab Sample ID: LCS 880-37447/2-A
Matrix: Solid
Analysis Batch: 37438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 37447

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*113*		*70 - 130*
o-Terphenyl	*122*		*70 - 130*

Lab Sample ID: LCSD 880-37447/3-A
Matrix: Solid
Analysis Batch: 37438

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 37447

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	869.5		mg/Kg		87	70 - 130	15	20
Diesel Range Organics (Over C10-C28)			1000	1082		mg/Kg		108	70 - 130	10	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*93*		*70 - 130*
o-Terphenyl	*104*		*70 - 130*

Lab Sample ID: 890-3235-1 MS
Matrix: Solid
Analysis Batch: 37438

Client Sample ID: SW17
Prep Type: Total/NA
Prep Batch: 37447

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	998	704.3		mg/Kg		71	70 - 130
Diesel Range Organics (Over C10-C28)	<49.8	U F2	998	1044		mg/Kg		105	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*106*		*70 - 130*
o-Terphenyl	*100*		*70 - 130*

Lab Sample ID: 890-3235-1 MSD
Matrix: Solid
Analysis Batch: 37438

Client Sample ID: SW17
Prep Type: Total/NA
Prep Batch: 37447

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	998	757.1		mg/Kg		76	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	<49.8	U F2	998	831.1	F2	mg/Kg		83	70 - 130	23	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*103*		*70 - 130*
o-Terphenyl	*75*		*70 - 130*

QC Sample Results

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-37479/1-A
Matrix: Solid
Analysis Batch: 37504

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			10/21/22 15:05	1

Lab Sample ID: LCS 880-37479/2-A
Matrix: Solid
Analysis Batch: 37504

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			250	255.8		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-37479/3-A
Matrix: Solid
Analysis Batch: 37504

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride			250	256.2		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-3244-A-1-B MS
Matrix: Solid
Analysis Batch: 37504

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	297		249	560.8		mg/Kg		106	90 - 110		

Lab Sample ID: 890-3244-A-1-C MSD
Matrix: Solid
Analysis Batch: 37504

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	297		249	562.8		mg/Kg		107	90 - 110	0	20

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

GC VOA

Prep Batch: 37402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Total/NA	Solid	5035	
890-3235-2	SW18	Total/NA	Solid	5035	
890-3235-3	SW19	Total/NA	Solid	5035	
890-3235-4	SW20	Total/NA	Solid	5035	
MB 880-37402/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-37402/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-37402/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-20550-A-2-F MS	Matrix Spike	Total/NA	Solid	5035	
880-20550-A-2-G MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 37452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Total/NA	Solid	8021B	37402
890-3235-2	SW18	Total/NA	Solid	8021B	37402
890-3235-3	SW19	Total/NA	Solid	8021B	37402
890-3235-4	SW20	Total/NA	Solid	8021B	37402
MB 880-37402/5-A	Method Blank	Total/NA	Solid	8021B	37402
LCS 880-37402/1-A	Lab Control Sample	Total/NA	Solid	8021B	37402
LCSD 880-37402/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	37402
880-20550-A-2-F MS	Matrix Spike	Total/NA	Solid	8021B	37402
880-20550-A-2-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	37402

Analysis Batch: 37516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Total/NA	Solid	Total BTEX	
890-3235-2	SW18	Total/NA	Solid	Total BTEX	
890-3235-3	SW19	Total/NA	Solid	Total BTEX	
890-3235-4	SW20	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 37438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Total/NA	Solid	8015B NM	37447
890-3235-2	SW18	Total/NA	Solid	8015B NM	37447
890-3235-3	SW19	Total/NA	Solid	8015B NM	37447
890-3235-4	SW20	Total/NA	Solid	8015B NM	37447
MB 880-37447/1-A	Method Blank	Total/NA	Solid	8015B NM	37447
LCS 880-37447/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	37447
LCSD 880-37447/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	37447
890-3235-1 MS	SW17	Total/NA	Solid	8015B NM	37447
890-3235-1 MSD	SW17	Total/NA	Solid	8015B NM	37447

Prep Batch: 37447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Total/NA	Solid	8015NM Prep	
890-3235-2	SW18	Total/NA	Solid	8015NM Prep	
890-3235-3	SW19	Total/NA	Solid	8015NM Prep	
890-3235-4	SW20	Total/NA	Solid	8015NM Prep	
MB 880-37447/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-37447/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

GC Semi VOA (Continued)

Prep Batch: 37447 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-37447/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3235-1 MS	SW17	Total/NA	Solid	8015NM Prep	
890-3235-1 MSD	SW17	Total/NA	Solid	8015NM Prep	

Analysis Batch: 37522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Total/NA	Solid	8015 NM	
890-3235-2	SW18	Total/NA	Solid	8015 NM	
890-3235-3	SW19	Total/NA	Solid	8015 NM	
890-3235-4	SW20	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 37479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Soluble	Solid	DI Leach	
890-3235-2	SW18	Soluble	Solid	DI Leach	
890-3235-3	SW19	Soluble	Solid	DI Leach	
890-3235-4	SW20	Soluble	Solid	DI Leach	
MB 880-37479/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-37479/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-37479/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3244-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3244-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 37504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3235-1	SW17	Soluble	Solid	300.0	37479
890-3235-2	SW18	Soluble	Solid	300.0	37479
890-3235-3	SW19	Soluble	Solid	300.0	37479
890-3235-4	SW20	Soluble	Solid	300.0	37479
MB 880-37479/1-A	Method Blank	Soluble	Solid	300.0	37479
LCS 880-37479/2-A	Lab Control Sample	Soluble	Solid	300.0	37479
LCSD 880-37479/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	37479
890-3244-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	37479
890-3244-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	37479

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Client Sample ID: SW17

Date Collected: 10/19/22 16:05
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3235-1
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			4.97 g	5 mL	37402	10/21/22 11:55	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37452	10/21/22 12:23	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37516	10/21/22 14:19	SM	EET MID
Total/NA	Analysis	8015 NM		1			37522	10/21/22 15:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37447	10/21/22 07:39	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37438	10/21/22 11:31	SM	EET MID
Soluble	Leach	DI Leach			5.01 g	50 mL	37479	10/21/22 11:04	KS	EET MID
Soluble	Analysis	300.0		1			37504	10/21/22 16:03	SMC	EET MID

Client Sample ID: SW18

Date Collected: 10/19/22 16:50
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3235-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	37402	10/21/22 11:55	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37452	10/21/22 12:44	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37516	10/21/22 14:19	SM	EET MID
Total/NA	Analysis	8015 NM		1			37522	10/21/22 15:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	37447	10/21/22 07:39	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37438	10/21/22 12:35	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	37479	10/21/22 11:04	KS	EET MID
Soluble	Analysis	300.0		1			37504	10/21/22 16:08	SMC	EET MID

Client Sample ID: SW19

Date Collected: 10/19/22 16:55
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3235-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	37402	10/21/22 11:55	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37452	10/21/22 13:05	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37516	10/21/22 14:19	SM	EET MID
Total/NA	Analysis	8015 NM		1			37522	10/21/22 15:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	37447	10/21/22 07:39	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37438	10/21/22 12:57	SM	EET MID
Soluble	Leach	DI Leach			4.96 g	50 mL	37479	10/21/22 11:04	KS	EET MID
Soluble	Analysis	300.0		1			37504	10/21/22 16:13	SMC	EET MID

Client Sample ID: SW20

Date Collected: 10/19/22 16:20
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3235-4
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			5.02 g	5 mL	37402	10/21/22 11:55	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	37452	10/21/22 13:25	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			37516	10/21/22 14:19	SM	EET MID

Lab Chronicle

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Client Sample ID: SW20

Date Collected: 10/19/22 16:20
Date Received: 10/20/22 09:38

Lab Sample ID: 890-3235-4

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			37522	10/21/22 15:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	37447	10/21/22 07:39	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	37438	10/21/22 13:19	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	37479	10/21/22 11:04	KS	EET MID
Soluble	Analysis	300.0		1			37504	10/21/22 16:18	SMC	EET MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

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	T104704400-22-24	06-30-23

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

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	MCAWW	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

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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: Ensolum
Project/Site: BEU 29W Vader 100H

Job ID: 890-3235-1
SDG: 03E1558005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-3235-1	SW17	Solid	10/19/22 16:05	10/20/22 09:38	0-4'
890-3235-2	SW18	Solid	10/19/22 16:50	10/20/22 09:38	0-4'
890-3235-3	SW19	Solid	10/19/22 16:55	10/20/22 09:38	0-4'
890-3235-4	SW20	Solid	10/19/22 16:20	10/20/22 09:38	0-4'

Released to Imaging: 1/30/2023 3:38:36 PM
Received by OCD: 1/4/2023 9:11:12 AM

eurofins | Environment Testing Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 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: _____

www.xenco.com Page 1 of 1

Project Manager:	Kaci Jennings	Bill to: (if different)	Garrett Green
Company Name:	Ensolum, LLC	Company Name:	XTO Energy
Address:	3122 Nati Parks Hwy	Address:	3104 E Greene St
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	Carlsbad, NM 88220
Phone:	817.683.2503 Email:		kjennings@ensolum.com

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:	BEU 29W Vader 100H	Turn Around	
Project Number:	03E1558005	☐ Routine ☑ Rush	Pres. Code
Project Location:	32.561, -103.779	Due Date: 1 day	
Sampler's Name:	Meredith Roberts	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:	TM 007
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Temperature Reading:	3.8
Total Containers:		Corrected Temperature:	3.6

ANALYSIS REQUEST

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	Chlorides	BTEX	TPH
SW17	S	10/19/22	1605	0-4'	C	1	X	X	X
SW18			1650						
SW19			1655						
SW20			1620						

890-3235 Chain of Custody

Sample Comments

Incident #:
NAPP2102831345

Cost Center:
1560221001

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		10/20/22 9:38			
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-3235-1
SDG Number: 03E1558005

Login Number: 3235
List Number: 1
Creator: Stutzman, Amanda

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: Ensolum

Job Number: 890-3235-1
SDG Number: 03E1558005

Login Number: 3235
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 10/21/22 12:46 PM

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	

ENSOLUM

January 3, 2022

New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Closure Request
BEU 29W Vader 100H
Incident Number NAPP2102831345
Lea County, New Mexico

To Whom It May Concern:

Ensolum, LLC (Ensolum) on behalf of XTO Energy, Inc (XTO), has prepared this *Closure Request* to document excavation and soil sampling activities performed at the BEU 29W Vader 100H (Site). The purpose of the excavation and soil sampling activities, conducted in accordance with an approved Remediation Work Plan (*Work Plan*), was to address impacts to soil resulting from a release of recycled water at the Site. XTO is submitting this *Closure Request*, describing excavation activities that have occurred and requesting Closure for Incident Number NAPP2102831345.

RELEASE BACKGROUND

The Site is located in Unit M, Section 16, Township 20 South, Range 32 East, in Lea County, New Mexico (32.56700°N, 103.77900°W) and is associated with oil and gas exploration and production operations on State Land.

On January 14, 2021, during hydraulic fracturing (frac) operations, a suction hose on a pump failed causing a release of approximately 30 barrels (bbls) of recycled water into a temporary lined containment constructed to contain the recycled water. A vacuum truck was immediately dispatched to the Site to recover the free-standing fluids; approximately 30 bbls of recycled water were recovered. XTO reported the release to the NMOCD via email on January 15, 2021. A 48-hour advance notice of liner inspection was provided to New Mexico Oil Conservation Division (NMOCD) District 1 office. The liner was inspected on January 27, 2021and determined to be insufficient. XTO submitted a Release Notification Form C-141 on January 28, 2021. The release was assigned Incident Number NAPP2102831345.

Once drilling operations were complete, Ensolum conducted delineation activities and presented the results in the *Work Plan* on June 24, 2022. The *Work Plan* proposed excavation of the chloride-impacted soil in the top 4 feet of the release area and the installation of a liner in the floor of the excavation to mitigate chloride migration in the subsurface. The response from NMOCD, on July 6, 2022, approved the *Work Plan* with conditions for a confirmation sampling frequency of every 400 square feet from the floor of the excavation and analysis of chloride only for all confirmation samples.

As documented in the approved *Work Plan*, the following NMOCD Table I Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH): 100 mg/kg
- Chloride: 600 mg/kg

DELINEATION AND EXCAVATION SOIL SAMPLING ACTIVITIES

Between September 20, 2022, and October 20, 2022, Ensolum return to the Site to oversee additional delineation and excavation activities. Two potholes, PH02 and PH04, were advanced past the original deepest sampling depth of 6 feet below ground surface (bgs) to depths of 14 feet and 16 feet, respectively. Samples were field screened for volatile organic compounds (VOCs) and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. The potholes and delineation soil sample locations are depicted on Figure 1. A photographic log can be found in Appendix A. Field screening results and observations for the potholes were logged on lithologic/soil sampling logs, which are included in Appendix B.

The delineation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of the following constituents of concern (COC): BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0. Soil samples delivered to the laboratory the same day they are collected may not have equilibrated to the 6 degrees Celcius required for shipment and long-term storage, but are considered to have been received in acceptable condition.

Following the vertical delineation, the excavation commenced according to the *Work Plan* by use of heavy equipment. To direct excavation activities, Ensolum personnel screened soil as described above. Following removal of soil, Ensolum personnel collected 5-point composite soil samples representing up to 400 square feet from the floor and 200 square feet from the sidewalls of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. The excavation soil samples were handled, and analyzed following the same procedures as described above for chloride. The excavation extent and excavation soil sample locations are presented on Figure 1. Impacted soil identified in the sidewalls by SW01, SW02, SW05, SW06, SW10, and SW11 was removed, extending the excavation laterally. Confirmation samples SW01A, SW02A, SW12, SW13, SW10A, and SW11A were collected along the new excavation extent.

The final excavation measured approximately 59,940 square feet and was 4 feet deep. A total of approimately 8,880 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and disposed of at the R360 Landfull Disposal Facility in Hobbs, New Mexico. After completion of confirmation sampling, the excavation areas were secured with fencing.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for delineation soil samples collected from PH02 at 8 feet, 10 feet, and 14 feet bgs indicated chloride concentrations exceeded the Closure Criteria, but vertical delineation was achieved with the sample at 16 feet bgs. The delineation soil samples collected from PH04 at 8 feet and 10 feet bgs also indicated chloride concentrations exceeded the Closure Criteria, but the delineation sample collected at 14 feet bgs was compliant with the Closure Criteria. Vertical delineation of chloride to less than 600 mg/kg was documented between 14 and 16 feet bgs.

Final confirmation samples collected from the final sidewalls met the Closure Criteria. Laboratory analytical results for the floor samples are variable, as expected from previous delineation sampling results. All sampling notifications to the NMOCD are included in Appendix C. The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical results are included in Appendix D.

LINER INSTALLATION AND BACKFILL ACTIVITIES

Upon completion of the excavation activities, a 20-mil impermeable liner was installed at 4 feet bgs. XTO backfilled the excavation with material purchased locally and recontoured the Site to match pre-existing site conditions.

CLOSURE REQUEST

Additional work was conducted at the Site as prescribed in the *Work Plan*. Newly collected discrete samples completed vertical delineation of impacted soil. Excavation was conducted to remove impacted soil in the top four feet and a liner was installed to mitigate deeper impacts. This work was conducted according to the approved *Work Plan*. As such, XTO requests closure and no further action for Incident Number NAPP2102831345.

If you have any questions or comments, please contact Ms. Tacoma Morrissey at (337) 257-8307 or tmorrissey@ensolum.com.

Sincerely,
Ensolum, LLC

Meredith Roberts
Field Geologist

Ashley L. Ager, M.S., P.G.
Program Director

cc: Garrett Green, XTO
Shelby Pennington, XTO
New Mexico State Land Office

Appendices:

Figure 1	Delineation Soil Sample Locations
Figure 2	Excavation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Photographic Log
Appendix B	Lithologic Soil Sampling Logs
Appendix C	NMOCD Notifications
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation

ENSOLUM

FIGURES



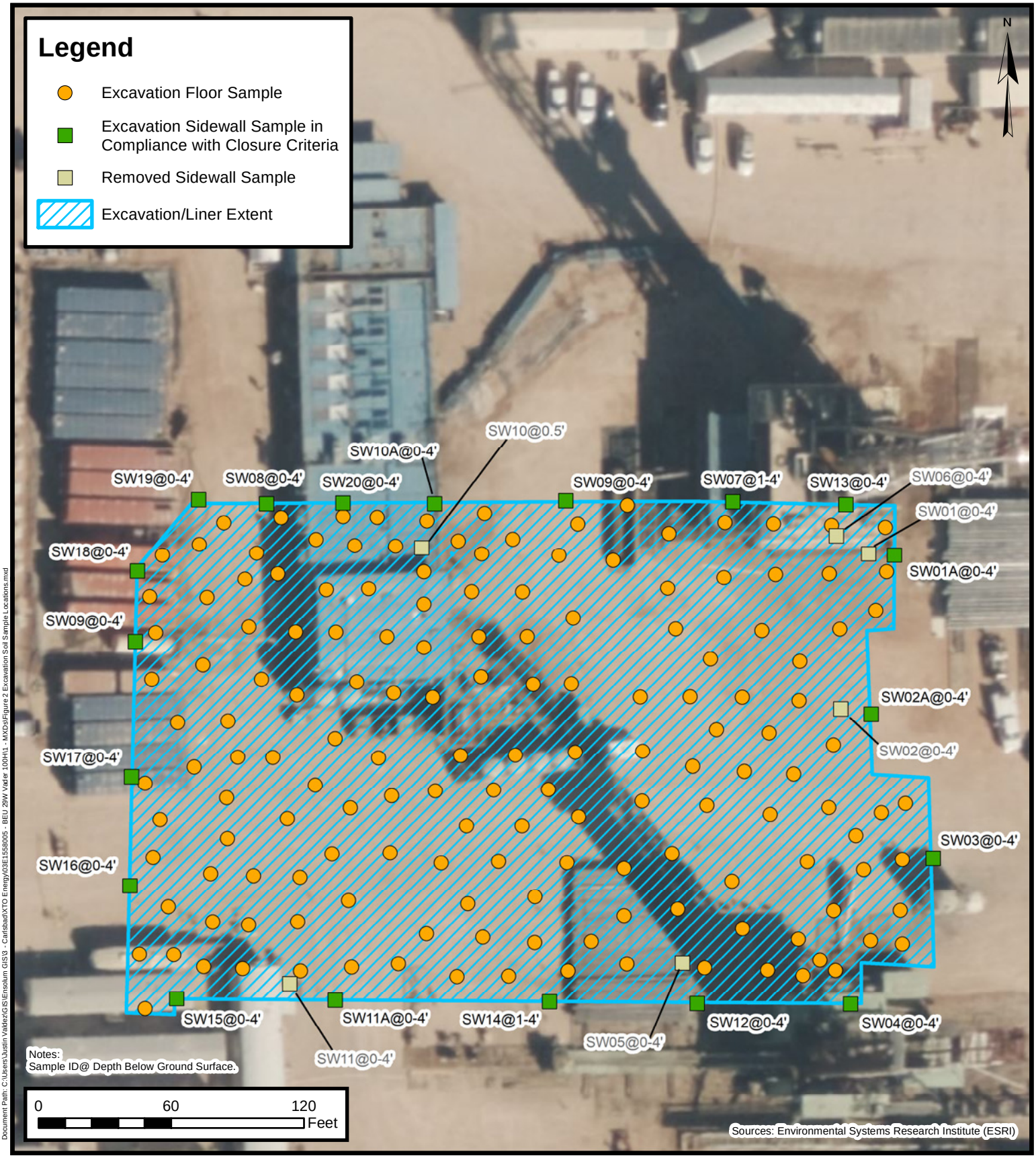
Document Path: C:\Users\Justin Valdez\GIS\Ensolum GIS\3 - Carlsbad\XTO Energy\03E1558005 - BEU 29W Vader 100H\1 - MXDs\Figure 1 Soil Sample Locations Copy.mxd

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Delineation Soil Sample Locations

BEU Vader 29W 100H
XTO Energy, Inc
Unit M Section 16 Township 20 South Range 32 East
Eddy County, New Mexico
Incident Number: NAPP2102831345

FIGURE
1



Document Path: C:\Users\Justin Valdez\GIS\Ensolum GIS\3 - Carlsbad\XTO Energy\03E1558005 - BEU 29W Vader 100H\1 - MXDs\Figure 2 Excavation Soil Sample Locations.mxd

ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

Excavation Soil Sample Locations

BEU Vader 29W 100H
XTO Energy, Inc
Unit M Section 16 Township 20 South Range 32 East
Eddy County, New Mexico
Incident Number: NAPP2102831345

FIGURE
2

ENSOLUM

TABLES

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BEU 29 W Vader 100H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Delineation Soil Samples										
PH02C	09/20/2022	8	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	**2,190**
PH02D	09/20/2022	10	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	**2,320**
PH02F	10/05/2022	14	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	**1,000**
PH02G	10/05/2022	16	,0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	564
PH04C	09/20/2022	8	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	**1,720**
PH04D	09/20/2022	10	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	**1,650**
PH04F	10/05/2022	14	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	395
Excavation Floor Samples										
FS01	09/30/2022	4	-	-	-	-	-	-	-	505
FS02	09/30/2022	4	-	-	-	-	-	-	-	550
FS03	09/30/2022	4	-	-	-	-	-	-	-	562
FS04	09/30/2022	4	-	-	-	-	-	-	-	**634**
FS05	09/30/2022	4	-	-	-	-	-	-	-	483
FS06	09/30/2022	4	-	-	-	-	-	-	-	**1,100**
FS07	09/30/2022	4	-	-	-	-	-	-	-	**1,690**
FS08	09/30/2022	4	-	-	-	-	-	-	-	**1,460**
FS09	09/30/2022	4	-	-	-	-	-	-	-	**2,190**
FS10	09/30/2022	4	-	-	-	-	-	-	-	**1,240**
FS11	09/30/2022	4	-	-	-	-	-	-	-	**1,930**
FS12	09/30/2022	4	-	-	-	-	-	-	-	**1,580**
FS13	09/30/2022	4	-	-	-	-	-	-	-	**1,160**
FS14	09/30/2022	4	-	-	-	-	-	-	-	**1,520**
FS15	09/30/2022	4	-	-	-	-	-	-	-	**1,940**
FS16	09/30/2022	4	-	-	-	-	-	-	-	**2,110**
FS17	09/30/2022	4	-	-	-	-	-	-	-	**1,810**
FS18	10/03/2022	4	-	-	-	-	-	-	-	**891**
FS19	10/03/2022	4	-	-	-	-	-	-	-	**1,180**
FS20	10/03/2022	4	-	-	-	-	-	-	-	**1,530**
FS21	10/03/2022	4	-	-	-	-	-	-	-	**891**
FS22	10/03/2022	4	-	-	-	-	-	-	-	**1,150**
FS23	10/03/2022	4	-	-	-	-	-	-	-	**2,470**
FS24	10/03/2022	4	-	-	-	-	-	-	-	**1,380**

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BEU 29 W Vader 100H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
FS25	10/03/2022	4	-	-	-	-	-	-	-	**1,470**
FS26	10/03/2022	4	-	-	-	-	-	-	-	**1,970**
FS27	10/04/2022	4	-	-	-	-	-	-	-	**3,390**
FS28	10/04/2022	4	-	-	-	-	-	-	-	**1,820**
FS29	10/04/2022	4	-	-	-	-	-	-	-	**1,540**
FS30	10/04/2022	4	-	-	-	-	-	-	-	**1,500**
FS31	10/04/2022	4	-	-	-	-	-	-	-	**1,420**
FS32	10/04/2022	4	-	-	-	-	-	-	-	111
FS33	10/04/2022	4	-	-	-	-	-	-	-	65.0
FS34	10/04/2022	4	-	-	-	-	-	-	-	442
FS35	10/04/2022	4	-	-	-	-	-	-	-	150
FS36	10/05/2022	4	-	-	-	-	-	-	-	**1,440**
FS37	10/05/2022	4	-	-	-	-	-	-	-	**1,250**
FS38	10/05/2022	4	-	-	-	-	-	-	-	**1,190**
FS39	10/05/2022	4	-	-	-	-	-	-	-	**1,250**
FS40	10/05/2022	4	-	-	-	-	-	-	-	**1,440**
FS41	10/05/2022	4	-	-	-	-	-	-	-	**1,650**
FS42	10/05/2022	4	-	-	-	-	-	-	-	**1,200**
FS43	10/05/2022	4	-	-	-	-	-	-	-	**727**
FS44	10/05/2022	4	-	-	-	-	-	-	-	**1,110**
FS45	10/06/2022	4	-	-	-	-	-	-	-	**1,260**
FS46	10/06/2022	4	-	-	-	-	-	-	-	**1,090**
FS47	10/06/2022	4	-	-	-	-	-	-	-	**898**
FS48	10/06/2022	4	-	-	-	-	-	-	-	96.5
FS49	10/06/2022	4	-	-	-	-	-	-	-	310
FS50	10/06/2022	4	-	-	-	-	-	-	-	66.8
FS51	10/07/2022	4	-	-	-	-	-	-	-	**1,400**
FS52	10/07/2022	4	-	-	-	-	-	-	-	**1,400**
FS53	10/07/2022	4	-	-	-	-	-	-	-	**910**
FS54	10/07/2022	4	-	-	-	-	-	-	-	**915**
FS55	10/07/2022	4	-	-	-	-	-	-	-	**778**
FS56	10/07/2022	4	-	-	-	-	-	-	-	**1,100**
FS57	10/07/2022	4	-	-	-	-	-	-	-	**1,520**
FS58	10/07/2022	4	-	-	-	-	-	-	-	**1,480**
FS59	10/07/2022	4	-	-	-	-	-	-	-	**1,520**

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BEU 29 W Vader 100H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
FS60	10/07/2022	4	-	-	-	-	-	-	-	**2,370**
FS61	10/07/2022	4	-	-	-	-	-	-	-	**1,990**
FS62	10/07/2022	4	-	-	-	-	-	-	-	**1,750**
FS63	10/07/2022	4	-	-	-	-	-	-	-	**1,060**
FS64	10/07/2022	4	-	-	-	-	-	-	-	**1,400**
FS65	10/07/2022	4	-	-	-	-	-	-	-	**1,740**
FS66	10/07/2022	4	-	-	-	-	-	-	-	**1,860**
FS67	10/07/2022	4	-	-	-	-	-	-	-	**1,880**
FS68	10/10/2022	4	-	-	-	-	-	-	-	**1,170**
FS69	10/10/2022	4	-	-	-	-	-	-	-	**682**
FS70	10/10/2022	4	-	-	-	-	-	-	-	**1,060**
FS71	10/10/2022	4	-	-	-	-	-	-	-	**1,220**
FS72	10/10/2022	4	-	-	-	-	-	-	-	**841**
FS73	10/10/2022	4	-	-	-	-	-	-	-	**990**
FS74	10/10/2022	4	-	-	-	-	-	-	-	**1,020**
FS75	10/10/2022	4	-	-	-	-	-	-	-	**952**
FS76	10/10/2022	4	-	-	-	-	-	-	-	**1,070**
FS77	10/10/2022	4	-	-	-	-	-	-	-	**1,100**
FS78	10/10/2022	4	-	-	-	-	-	-	-	**765**
FS79	10/10/2022	4	-	-	-	-	-	-	-	181
FS80	10/10/2022	4	-	-	-	-	-	-	-	238
FS81	10/10/2022	4	-	-	-	-	-	-	-	**940**
FS82	10/10/2022	4	-	-	-	-	-	-	-	**1,000**
FS83	10/10/2022	4	-	-	-	-	-	-	-	**1,410**
FS84	10/10/2022	4	-	-	-	-	-	-	-	**1,360**
FS85	10/10/2022	4	-	-	-	-	-	-	-	**1,330**
FS86	10/11/2022	4	-	-	-	-	-	-	-	**1,360**
FS87	10/11/2022	4	-	-	-	-	-	-	-	**1,230**
FS88	10/11/2022	4	-	-	-	-	-	-	-	**1,140**
FS89	10/11/2022	4	-	-	-	-	-	-	-	**1,270**
FS90	10/11/2022	4	-	-	-	-	-	-	-	**1,510**
FS91	10/11/2022	4	-	-	-	-	-	-	-	**1,100**
FS92	10/11/2022	4	-	-	-	-	-	-	-	**1,050**
FS93	10/11/2022	4	-	-	-	-	-	-	-	**1,330**
FS94	10/11/2022	4	-	-	-	-	-	-	-	**668**

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BEU 29 W Vader 100H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
FS95	10/13/2022	4	-	-	-	-	-	-	-	**669**
FS96	10/13/2022	4	-	-	-	-	-	-	-	**869**
FS97	10/13/2022	4	-	-	-	-	-	-	-	**718**
FS98	10/13/2022	4	-	-	-	-	-	-	-	422
FS99	10/13/2022	4	-	-	-	-	-	-	-	**917**
FS100	10/13/2022	4	-	-	-	-	-	-	-	**1,060**
FS101	10/13/2022	4	-	-	-	-	-	-	-	**1,210**
FS102	10/13/2022	4	-	-	-	-	-	-	-	**1,010**
FS103	10/13/2022	4	-	-	-	-	-	-	-	**942**
FS104	10/13/2022	4	-	-	-	-	-	-	-	**1,940**
FS105	10/13/2022	4	-	-	-	-	-	-	-	**1,370**
FS106	10/14/2022	4	-	-	-	-	-	-	-	**2,110**
FS107	10/14/2022	4	-	-	-	-	-	-	-	**1,570**
FS108	10/14/2022	4	-	-	-	-	-	-	-	**938**
FS109	10/14/2022	4	-	-	-	-	-	-	-	**1,410**
FS110	10/14/2022	4	-	-	-	-	-	-	-	**1,430**
FS111	10/14/2022	4	-	-	-	-	-	-	-	464
FS112	10/14/2022	4	-	-	-	-	-	-	-	**629**
FS113	10/14/2022	4	-	-	-	-	-	-	-	**1,490**
FS114	10/14/2022	4	-	-	-	-	-	-	-	**870**
FS115	10/14/2022	4	-	-	-	-	-	-	-	**1,270**
FS116	10/14/2022	4	-	-	-	-	-	-	-	**1,410**
FS117	10/14/2022	4	-	-	-	-	-	-	-	**1,420**
FS118	10/17/2022	4	-	-	-	-	-	-	-	**650**
FS119	10/17/2022	4	-	-	-	-	-	-	-	**868**
FS120	10/17/2022	4	-	-	-	-	-	-	-	72.8
FS121	10/17/2022	4	-	-	-	-	-	-	-	66.1
FS122	10/17/2022	4	-	-	-	-	-	-	-	25.0
FS123	10/17/2022	4	-	-	-	-	-	-	-	81.1
FS124	10/17/2022	4	-	-	-	-	-	-	-	47.3

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BEU 29 W Vader 100H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
FS125	10/17/2022	4	-	-	-	-	-	-	-	105
FS126	10/17/2022	4	-	-	-	-	-	-	-	125
FS127	10/17/2022	4	-	-	-	-	-	-	-	60.3
FS128	10/17/2022	4	-	-	-	-	-	-	-	22.7
FS129	10/17/2022	4	-	-	-	-	-	-	-	47.3
FS130	10/17/2022	4	-	-	-	-	-	-	-	37.3
FS131	10/17/2022	4	-	-	-	-	-	-	-	20.8
FS132	10/18/2022	4	-	-	-	-	-	-	-	**959**
FS133	10/18/2022	4	-	-	-	-	-	-	-	**801**
FS134	10/18/2022	4	-	-	-	-	-	-	-	553
FS135	10/18/2022	4	-	-	-	-	-	-	-	**1,020**
FS136	10/18/2022	4	-	-	-	-	-	-	-	**952**
FS137	10/18/2022	4	-	-	-	-	-	-	-	**1,030**
FS138	10/18/2022	4	-	-	-	-	-	-	-	**958**
FS139	10/18/2022	4	-	-	-	-	-	-	-	580
FS140	10/18/2022	4	-	-	-	-	-	-	-	**722**
FS141	10/18/2022	4	-	-	-	-	-	-	-	**965**
FS142	10/18/2022	4	-	-	-	-	-	-	-	**1,070**
FS143	10/18/2022	4	-	-	-	-	-	-	-	566
FS144	10/18/2022	4	-	-	-	-	-	-	-	580
FS145	10/18/2022	4	-	-	-	-	-	-	-	**1,020**
FS146	10/19/2022	4	-	-	-	-	-	-	-	**1,220**
FS147	10/19/2022	4	-	-	-	-	-	-	-	**808**
FS148	10/19/2022	4	-	-	-	-	-	-	-	**845**
FS149	10/19/2022	4	-	-	-	-	-	-	-	**1,150**
FS150	10/19/2022	4	-	-	-	-	-	-	-	514
FS151	10/19/2022	4	-	-	-	-	-	-	-	**1,240**
FS152	10/19/2022	4	-	-	-	-	-	-	-	**651**
FS153	10/19/2022	4	-	-	-	-	-	-	-	**744**

ENSOLUM

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
BEU 29 W Vader 100H
XTO Energy, Inc.
Eddy County, New Mexico

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	GRO+DRO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	NE	100	600
Excavation Sidewall Samples										
~~SW01~~	~~10/7/2022~~	~~0-4~~	~~<0.00201~~	~~<0.00402~~	~~<49.8~~	~~<49.8~~	~~<49.8~~	~~<49.8~~	~~<49.8~~	~~**852**~~
SW01A	10/20/2022	0-4	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	150
~~SW02~~	~~10/03/2022~~	~~0-4~~	-	-	-	-	-	-	-	~~**743**~~
SW02A	10/20/2022	0-4	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	144
SW03	10/7/2022	0-4	<0.002	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	486
SW04	10/6/2022	0-4	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	38.9
~~SW05~~	~~10/6/2022~~	~~0-4~~	~~<0.00199~~	~~<0.00398~~	~~<50.0~~	~~<50.0~~	~~<50.0~~	~~<50.0~~	~~<50.0~~	~~**720**~~
~~SW06~~	~~10/6/2022~~	~~0-4~~	~~<0.00200~~	~~<0.00400~~	~~<50.0~~	~~<50.0~~	~~<50.0~~	~~<50.0~~	~~<50.0~~	~~**1,360**~~
SW07	10/13/2022	1-4	<0.00199	<0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	548
SW08	10/17/2022	0-4	-	-	<49.8	<49.8	<49.8	<49.8	<49.8	356
SW09	10/17/2022	0-4	-	-	<49.9	<49.9	<49.9	<49.9	<49.9	546
~~SW10~~	~~10/17/2022~~	~~0-4~~	-	-	~~<49.8~~	~~<49.8~~	~~<49.8~~	~~<49.8~~	~~<49.8~~	~~**970**~~
SW10A	10/20/2022	0-4	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	574
~~SW11~~	~~10/10/2022~~	~~0-4~~	~~<0.00200~~	~~<0.00399~~	~~<50.0~~	~~**466**~~	~~<50.0~~	~~466~~	~~**466**~~	~~**706**~~
SW11A	10/20/2022	0-4	<0.00202	<0.00404	<49.8	<49.8	<49.8	<49.8	<49.8	338
SW12	10/11/2022	0-4	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	524
SW13	10/11/2022	0-4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	482
SW14	10/13/2022	1-4	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	<49.9	490
SW15	10/18/2022	0 - 4	<0.00200	<0.00401	<49.8	<49.8	<49.8	<49.8	<49.8	68.2
SW16	10/18/2022	0 - 4	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	<50.0	566
SW17	10/19/2022	0-4	<0.00201	<0.00402	<49.8	<49.8	<49.8	<49.8	<49.8	436
SW18	10/19/2022	0-4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	332
SW19	10/19/2022	0-4	<0.00200	<0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	469
SW20	10/19/2022	0-4	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	107

Notes:

bgs: below ground surface
mg/kg: milligrams per kilogram
NMOCD: New Mexico Oil Conservation Division
BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
Concentrations in bold exceed the NMOCD Table 1 Closure Criteria or reclamation standard where applicable.
GRO: Gasoline Range Organics
DRO: Diesel Range Organics
ORO: Oil Range Organics
TPH: Total Petroleum Hydrocarbon
NMAC: New Mexico Administrative Code
Grey text indicates soil sample removed during excavation activities

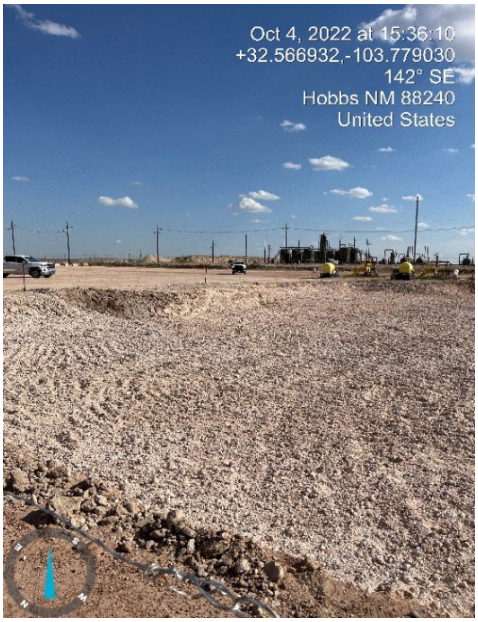
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APPENDIX B

Photographic Log

ENSOLUM

Photographic Log
XTO Energy, Inc
BEU 29W Vader 100H
Incident Number NAPP2102831345



Photograph: 1 Date: Oct. 4, 2022
Description: Excaviation extent
View: Southeast



Photograph: 2 Date: Oct. 19, 2022
Description: Excavation extent
View: East



Photograph: 3 Date: Oct. 20, 2022
Description: Liner installation
View: Northwest



Photograph: 4 Date: Oct. 22, 2022
Description: Backfilling activities
View: East

ENSOLUM

APPENDIX C

Lithologic Soil Sampling Logs

ENSOLUM

	Sample Name: PH02	Date: 10/05/2022
	Site Name: BEU 29W Vader 100H	
	Incident Number: NAPP2102831345	
	Job Number: 03E1558005	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Trackhoe
Coordinates: 32.56700, -103.77900	Hole Diameter: 3.5"	Total Depth: 16'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
D	986	0.3	N	PH02	2	2	CCHE	CALICHE, little silt, moderate consolidation, light brown/tan, no odor, no staining
D	1,243	0.3	N	PH02A	4	4	CCHE	SAA
D	1,545	0.3	N	PH02B	6	6	SP	SAND w/ silt, darker brown/tan, chunks of claystone, no stain, no odor.
D	1,176	0.2	N	PH02C	8	8	SP	SAND w/ silt, reddish/brown, chunks of claystone, no stain, no odor.
D	521	0.2	N	PH02D	10	10	SP	SAA
M	845.6	0	N	PH02E	12	12	SP	SAND, red, poorly graded, no staining, no odor Small amounts of claystones, slightly moist
D	638.4	0.1	N	PH02F	14	14	SP	SAA, dry
D	638.4	0	N	PH02G	16	16	SP	SAA
								Total Depth @ 16'

ENSOLUM

	Sample Name: PH02	Date: 10/05/2022
	Site Name: BEU 29W Vader 100H	
	Incident Number: NAPP2102831345	
	Job Number: 03E1558005	
LITHOLOGIC / SOIL SAMPLING LOG	Logged By: MR	Method: Trackhoe
Coordinates: 32.56700, -103.77900	Hole Diameter: 3.5"	Total Depth: 14'

Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. A 40% error factor is included.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
						0		
D	520.8	0.3	N	PH04	2	2	CCHE	CALICHE, little silt, moderate consolidation, light brown/tan, no odor, no staining
D	1,439	0.3	N	PH04A	4	4	CCHE	SAA
D	986	0.3	N	PH04B	6	6	SP	SAND w/ silt, darker brown/tan, chunks of claystone, no stain, no odor.
D	918	0.2	N	PH04C	8	8	SP	SAND w/ silt, reddish/brown, chunks of claystone, no stain, no odor.
D	582	0.2	N	PH04D	10	10	SP	SAA
D	638.4	0	N	PH04E	12	12	SP	SAND, red, poorly graded, no staining, no odor Small amounts of claystones
D	240.8	0	N	PH04F	14	14	SP	SAA
								Total Depth @ 14'

ENSOLUM

APPENDIX E

NMOCD Notifications

Baker, Adrian

From: Baker, Adrian
Sent: Monday, January 25, 2021 8:52 AM
To: 'Bratcher, Mike, EMNRD'; Hamlet, Robert, EMNRD; Venegas, Victoria, EMNRD; 'Mann, Ryan'
Cc: Littrell, Kyle; 'Garrett Green (Garrett_Green@xtoenergy.com)'
Subject: 48 hour liner notification - BEU 29W Vader 100H release date 1-14-21

Good morning,

This is sent as a 48-hour notification, XTO is scheduled to inspect the lined containment at BEU 29W Vader 100H (release date 1-14-21) on Wednesday, January 27, 2021, at 9am MST. A 24 hour release notification was sent out on Friday, January 15, 2020 at 5:15 PM since the release was greater than 25 barrels in volume. Please call us with any questions or concerns.

GPS Coordinates: 32.567, -103.779

Please note the email change below.

Thank you

Adrian Baker
Environmental Coordinator
Permian Business Unit

XTO Energy Inc.
6401 N. Holiday Hill Dr.
Midland, Tx 79707
Mobile:(432)-236-3808
adrian.baker@exxonmobil.com

From: Collins, Melanie
To: DelawareSpills /SM; Aimee Cole; Tacoma Morrissey; Kalei Jennings; Ben Belill; Ashley Ager
Cc: Pennington, Shelby G
Subject: FW: The Oil Conservation Division (OCD) has approved the application, Application ID: 120265
Date: Thursday, July 7, 2022 8:06:02 AM

[**EXTERNAL EMAIL**]

BEU 29W Vader 100H released 1/14/21

From: OCDOnline@state.nm.us [mailto:OCDOnline@state.nm.us]
Sent: Wednesday, July 6, 2022 3:44 PM
To: Collins, Melanie <melanie.collins@exxonmobil.com>
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 120265

External Email - Think Before You Click

To whom it may concern (c/o Melanie Collins for XTO ENERGY, INC),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nAPP2102831345, with the following conditions:

- **Revised Remediation Plan Approved. Liner Installation Request Approved.**

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Jennifer Nobui
Environmental Specialist-Advanced
505-470-3407
Jennifer.Nobui@state.nm.us

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

From: Green, Garrett J
To: ocd.enviro@state.nm.us; mike.bratcher@state.nm.us; Hamlet, Robert, EMNRD
Cc: DelawareSpills /SM; Tacoma Morrissey
Subject: XTO - Sampling Notification (Week of 9/19/22 - 9/23/22)
Date: Friday, September 16, 2022 4:34:08 PM

[**EXTERNAL EMAIL**]

All,

XTO plans to complete final sampling activities at the following sites the week of Sep 19, 2022.

Monday
- PLU 147 / Spill Date 09/10/2022
- ADU 624 / NAPP2123634554
- ADU 641/ NAPP2215449179
- PLU 411/ nAPP2219646774
- ADU 816 / NAB1435334641

Tuesday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 411/ nAPP2219646774
- ADU 816 / NAB1435334641
- Stan 32 State 71H / NRM2004938133

Wednesday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 27 BD 167/ nAPP2222741514
- Stan 32 State 71H / NRM2004938133

Thursday
- BEU 29W Vader 100H / nAPP2102831345
- Stan 32 State 71H / NRM2004938133

Friday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 184H / nAPP2219648561

Thank you!

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

From: Collins, Melanie
To: ocd.enviro@emnrd.nm.gov; Hamlet, Robert, EMNRD; Bratcher, Michael, EMNRD
Cc: DelawareSpills /SM; Green, Garrett J; Tacoma Morrissey
Subject: XTO - Extension Request - BEU 29W Vader 100H (Incident Number NAPP2102831345)
Date: Tuesday, October 4, 2022 2:26:25 PM
Attachments: image001.png

[**EXTERNAL EMAIL**]

All,

XTO is requesting an extension of the current October 5, 2022 deadline for submitting a closure report as outlined in the approved Work Plan for the BEU 29W Vader 100H (Incident Number NAPP2102831345). The release occurred on January 14, 2021 during drilling operations. Once drilling operations were complete, delineation of the release was conducted. A Remediation Work Plan, proposing excavation of impacted soil to 4 feet bgs and installation of an impermeable liner was submitted on May 3, 2022. The Work Plan was approved on July 6, 2022. XTO scheduled excavation, however, ongoing production operations utilizing a work over rig were being completed at the Site. XTO operations team provided updates to confirm when the work was complete. Excavation began September 29, 2022 and is ongoing. Based on the schedule outlined in the approved Work Plan the proposed scope of work will take approximately 90 days. As such, XTO requests a 90-day extension to January 3, 2023 to submit a Closure Report.

Thank you,

Melanie Collins

XTO ENERGY

Environmental Technician
melanie.collins@exxonmobil.com
432-556-3756

From: Green, Garrett J
To: ocd.enviro@emnrd.nm.gov; Bratcher, Michael, EMNRD; Hamlet, Robert, EMNRD
Cc: DelawareSpills /SM; Tacoma Morrissey
Subject: XTO - Sampling Notification (Week of 10/10/22 - 10/14/22)
Date: Friday, October 7, 2022 2:55:29 PM

[**EXTERNAL EMAIL**]

All,

XTO plans to complete final sampling activities at the following sites the week of Oct 10, 2022.

Monday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 78 SWD / NAPP2126639352

Tuesday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 78 SWD / NAPP2126639352

Wednesday
- BEU 29W Vader 100H / nAPP2102831345
- JRU 163 / nAPP2219649599
- PLU 411/ nAPP2219646774

Thursday
- BEU 29W Vader 100H / nAPP2102831345
- JRU 163 / nAPP2219649599
- PLU 411/ nAPP2219646774

Friday
- BEU 29W Vader 100H / nAPP2102831345

Thank you,

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

From: Green, Garrett J
To: ocd.enviro@emnrd.nm.gov; Bratcher, Michael, EMNRD; Hamlet, Robert, EMNRD
Cc: Tacoma Morrissey; DelawareSpills /SM
Subject: XTO - Sampling Notification (Week of 10/17/22 - 10/21/22)
Date: Monday, October 17, 2022 11:21:03 AM

[**EXTERNAL EMAIL**]

All,

Please see the update below to this week's sampling schedule. XTO plans to complete final sampling activities at the following sites the week of Oct 17, 2022.

Monday
- BEU 29W Vader 100H / nAPP2102831345

Tuesday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 21 BD 125H/ nAPP2214547737

Wednesday
- BEU 29W Vader 100H / nAPP2102831345
- PLU 30 Big Sinks/ nAPP2209137379, nAPP2208351954, nAPP2206853301

Thursday
- PLU 30 Big Sinks/ nAPP2209137379, nAPP2208351954, nAPP2206853301
- JRU 108 / nAPP2217931599
- JRU 106 / nAPP2212344322

Garrett Green
Environmental Coordinator
Delaware Business Unit
(575) 200-0729
Garrett.Green@ExxonMobil.com

XTO Energy, Inc.
3104 E. Greene Street | Carlsbad, NM 88220 | M: (575)200-0729

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 172150

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 172150
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Closure Report Approved.	1/30/2023