

Incident ID	NAPP2204125212
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: Adrian Baker Title: Environmental Coordinator
Signature: Adrian Baker Date: 04/27/2022
email: adrian.baker@exxonmobil.com Telephone: 432-236-3808

OCD Only

Received by: Robert Hamlet Date: 5/19/2022

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: Robert Hamlet Date: 5/19/2022

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

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	NAPP2204125212
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Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Incident ID	NAPP2204125212
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Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
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: _____	Title: _____
Signature: <u>Adrian Bates</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: <u>Ramona Marcus</u>	Date: <u>2/14/2022</u>

NAPP2204125212

Location:	PLU RR 33-25-30 Battery		
Spill Date:	1/29/2022		
Area 1			
Approximate Area =	3209.00	sq. ft.	
Average Saturation (or depth) of spill =	0.50	inches	
Average Porosity Factor =	0.03		
VOLUME OF LEAK			
Total Crude Oil =	0.71	bbls	
Total Produced Water =	0.00	bbls	
TOTAL VOLUME OF LEAK			
Total Crude Oil =	0.71	bbls	
Total Produced Water =	0.00	bbls	
TOTAL VOLUME RECOVERED			
Total Crude Oil =	0.00	bbls	
Total Produced Water =	0.00	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 80507

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 80507
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rmarcus	None	2/14/2022

Incident ID	NAPP2204125212
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?	<u>>100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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

Page 4

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District RP	
Facility ID	
Application ID	

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Printed Name: ___Adrian Baker_____

Title: __Environmental Coordinator_____

Signature: ________

Date: __04/27/2022_____

email: __adrian.baker@exxonmobil.com_____

Telephone: ____432-236-3808_____

OCD Only

Received by: _____

Date: _____

Incident ID	NAPP2204125212
District RP	
Facility ID	
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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: Adrian Baker Title: Environmental Coordinator

Signature: Adrian Baker Date: 04/27/2022

email: adrian.baker@exxonmobil.com Telephone: 432-236-3808

OCD Only

Received by: _____ Date: _____

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: _____

Printed Name: _____ Title: _____



April 27, 2022

District II
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

**Re: Closure Request
PLU Ross Ranch 33-25-30
Incident Number NAPP2204125212
Eddy 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 site assessment and soil sampling activities performed at the PLU Ross Ranch 33-25-30 (Site) in Unit D, Section 33, Township 25 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment and soil sampling activities was to assess for the presence or absence of impacted soil resulting from a small crude oil flare fire at the Site. Based on the site assessment activities and analytical results from the soil sampling events, XTO is submitting this Closure Request for Incident Number NAPP2204125212.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Eddy County, New Mexico (32.0933° N, 103.8926°W) and is associated with oil and gas exploration and production operations on Bureau of Land Management (BLM) Federal Land.

On January 29, 2022, the flare scrubber and level controller switch failed, causing approximately 0.71 barrels (bbls) of crude oil to release out of the flare. The released fluids ignited and the fire extinguished itself on the ground. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on February 9, 2022. The release was assigned Incident Number NAPP2204125212.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Results from the characterization desktop review are presented on page 3 of the Form C-141, Site Assessment/Characterization. Potential site receptors are identified on Figure 1.

Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is NMOSE well C-03782-POD1, located approximately 441 feet northeast of the Site. The groundwater well has a reported depth to groundwater of 277 feet bgs and a total depth of 805 feet bgs. Ground surface elevation at the groundwater well location is 3,198 feet above mean sea level

(amsl), which is approximately 1 foot lower in elevation than the Site. There are no regional or Site-specific hydrological conditions, such as shallow surface water, karst features, wetlands, or vegetation that suggest the Site is conducive to shallow groundwater. All wells used for depth to groundwater determination are presented on Figure 1. The referenced well records are included in Appendix A.

The closest continuously flowing or significant watercourse to the Site is an intermittent riverine, located approximately 3,293 feet north of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

Based on the results of the Site Characterization, the following NMOCD Table 1 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)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 20,000 mg/kg

SITE ASSESSMENT ACTIVITIES

On April 20, 2022, site assessment activities were conducted to evaluate the release based on information provided on the Form C-141 and visual observations. No visible indications of the release or fire were observed; therefore, boreholes BH01 through BH03 and surface samples SS01 and SS02 were collected around the flare to confirm the absence of impacted soil. Boreholes BH01 through BH03 were advanced to depth of 2 feet bgs. Delineation soils samples were collected from each borehole at depths of 0.5 feet, 1-foot and, 2 feet bgs. Surface samples SS01 and SS02 were collected from a depth of 0.5 feet bgs from the pasture area directly east of the flare. The soil samples were field screened for volatile organic compounds (VOCs) utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. Field screening results and observations for the boreholes were logged on lithologic soil sampling logs, which are included in Appendix B. The flare stack release point and soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation of the assessment activities is included in Appendix C.

The 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 at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of 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.

LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples collected from boreholes BH01 through BH03 indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Site Closure Criteria and provided vertical delineation to below the most stringent

Table 1 Closure Criteria. Laboratory analytical results for surface samples SS01 and SS02 indicated that benzene, BTEX, TPH, and chloride concentrations were compliant with the most Stringent Table 1 Closure Criteria. Laboratory analytical results are summarized in Table 1 and laboratory analytical reports are included as Appendix D.

CLOSURE REQUEST

Site assessment activities were conducted at the Site to assess for the presence or absence of impacted soil resulting from the January 29, 2022 crude oil flare fire. Laboratory analytical results for the soil samples collected from the flare release area indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the soil sample analytical results, no impacted soil was identified and no further remediation was required.

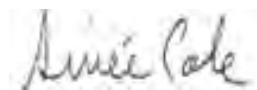
Depth to groundwater is greater than 100 feet bgs and no other sensitive receptors were identified near the release extent. XTO believes these remedial actions are protective of human health, the environment, and groundwater. XTO respectfully requests closure for Incident Number NAPP2204125212.

If you have any questions or comments, please contact Ms. Aimee Cole at (720) 384-7365 or acole@ensolum.com.

Sincerely,
Ensolum, LLC



Kalei Jennings
Senior Scientist



Aimee Cole
Senior Managing Scientist

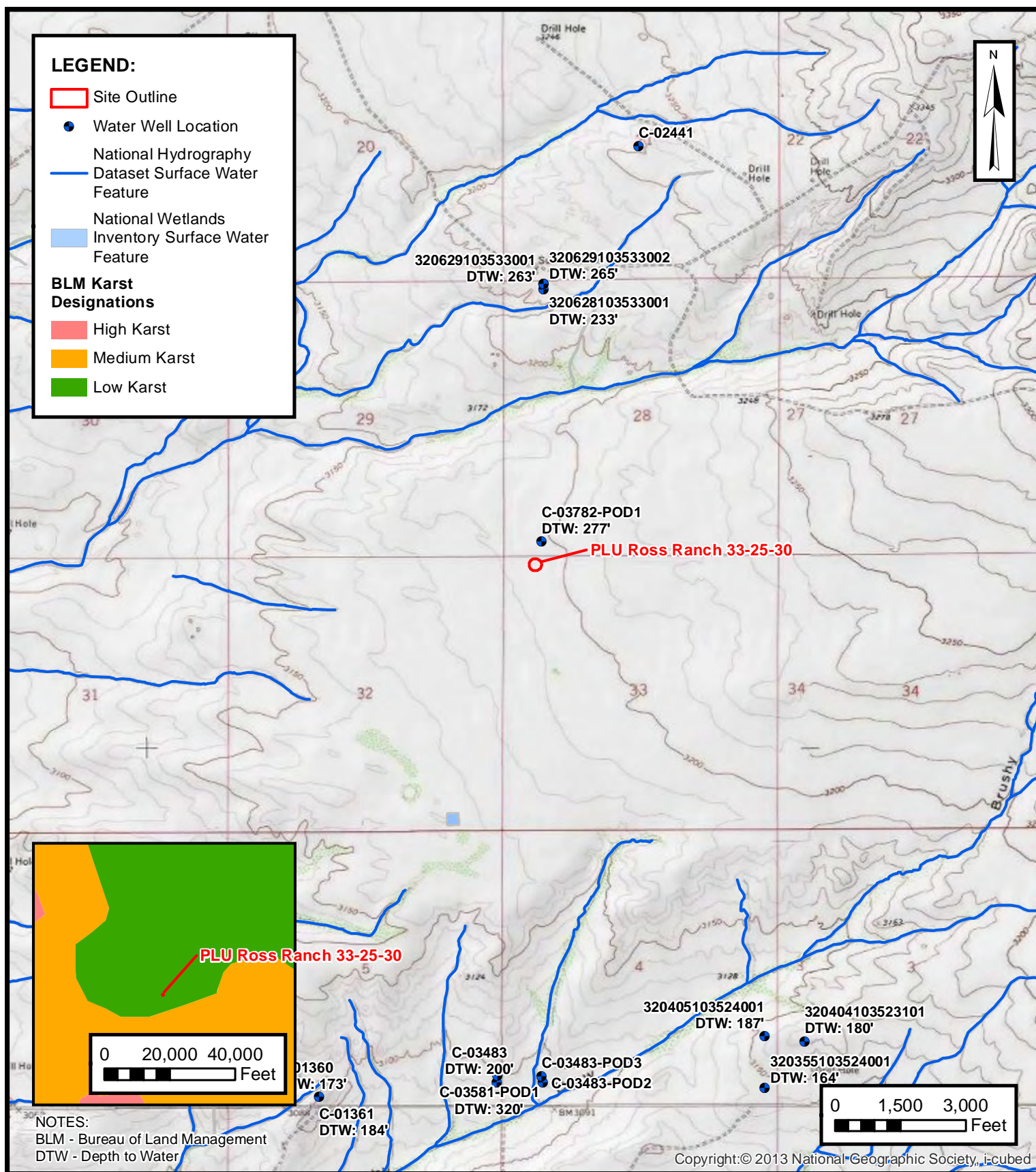
cc: Adrian Baker, XTO
Bureau of Land Management

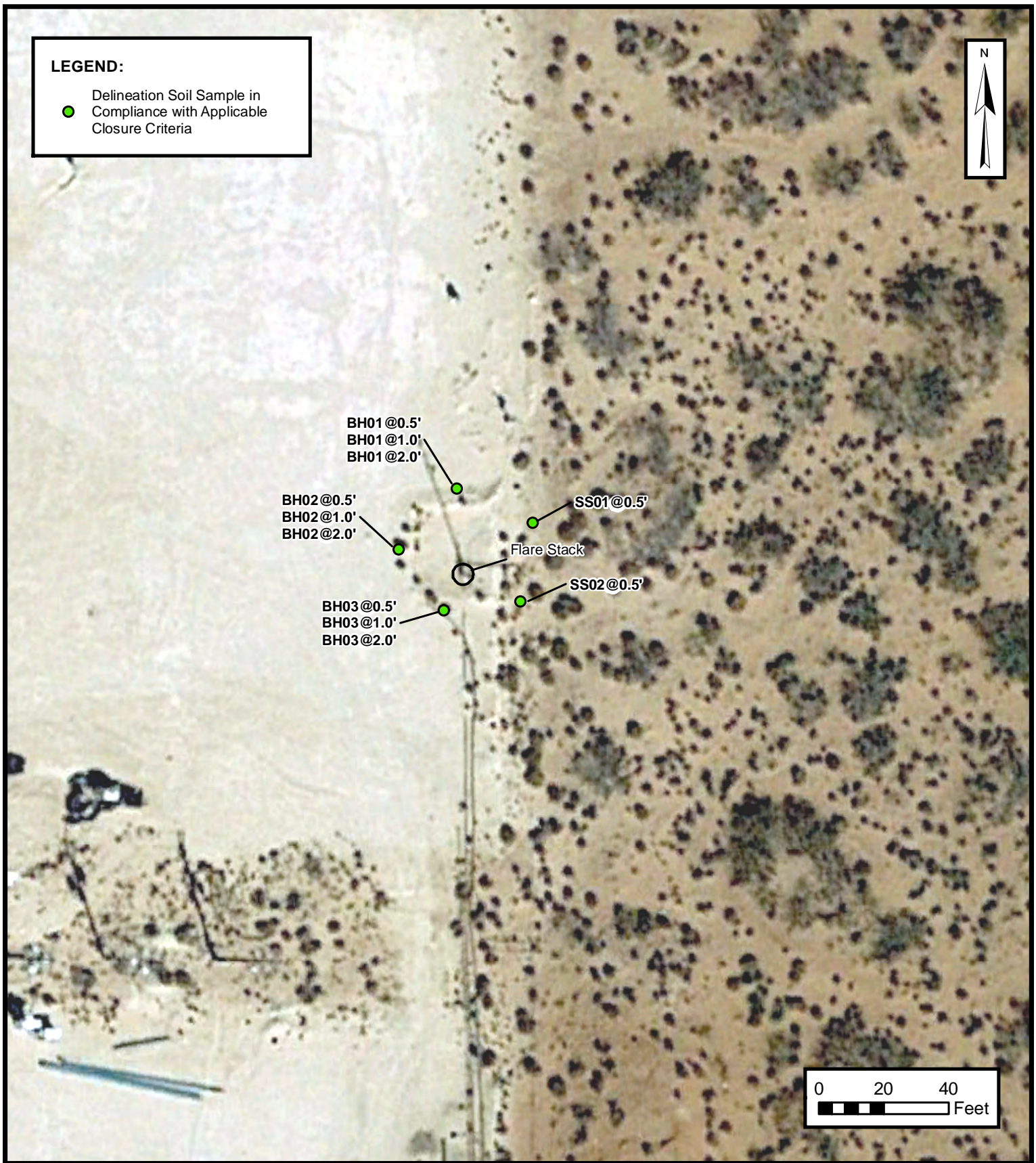
Appendices:

Figure 1	Site Location Map
Figure 2	Delineation Soil Sample Locations
Table 1	Soil Sample Analytical Results
Appendix A	Referenced Well Records
Appendix B	Lithologic Soil Sampling Logs
Appendix C	Photographic Log
Appendix D	Laboratory Analytical Reports & Chain-of-Custody Documentation
Appendix E	NMOCD Sample Notification



FIGURES





DELINEATION SOIL SAMPLE LOCATIONS

XTO ENERGY, INC
PLU ROSS RANCH 33-25-30
NAPP2204125212
Unit D, Sec 33, T25S, R30E
Eddy County, New Mexico

FIGURE

2



TABLES



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 XTO Energy, Inc. - PLU Ross Ranch 33-25-30
 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	1,000	2,500	20,000
Delineation Soil Sample Analytical Results										
BH01	04/20/2022	0.5	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	330
BH01A	04/20/2022	1	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	37.1
BH01B	04/20/2022	2	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	31.3
BH02	04/20/2022	0.5	<0.00201	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	699
BH02A	04/20/2022	1	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	132
BH02B	04/20/2022	2	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	57.8
BH03	04/20/2022	0.5	<0.00200	<0.00399	<50.0	148	<50.0	148	148	633
BH03A	04/20/2022	1	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	132
BH03B	04/20/2022	2	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	47.9
SS01	04/20/2022	0.5	<0.00200	<0.00399	<49.9	60.6	<49.9	60.6	60.6	15.8
SS02	04/20/2022	0.5	<0.00199	<0.00398	<50.0	90.0	<50.0	90.0	90.0	13.0

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

Concentrations in bold exceed the NMOCD Table 1 Closure Criteria for Soils Impacted by a Release



APPENDIX A

Referenced Well Records



Point of Diversion Summary

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

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
C 03782	POD1	4	3	3	28	25S	30E	604526	3551444

Driller License: 331 **Driller Company:** SBQ2, LLC DBA STEWART BROTHERS DRILLING CO.

Driller Name:

Drill Start Date: 01/16/2015	Drill Finish Date: 01/17/2015	Plug Date:
Log File Date: 02/19/2015	PCW Rcv Date:	Source: Artesian
Pump Type:	Pipe Discharge Size:	Estimated Yield:
Casing Size: 8.63	Depth Well: 805 feet	Depth Water: 277 feet

Water Bearing Stratifications:	Top	Bottom	Description
	260	320	Sandstone/Gravel/Conglomerate
	320	380	Sandstone/Gravel/Conglomerate
	380	410	Sandstone/Gravel/Conglomerate
	410	530	Shale/Mudstone/Siltstone
	530	590	Shale/Mudstone/Siltstone
	590	600	Shale/Mudstone/Siltstone
	600	630	Shale/Mudstone/Siltstone
	630	650	Shale/Mudstone/Siltstone
	650	700	Shale/Mudstone/Siltstone
	700	710	Shale/Mudstone/Siltstone
	710	760	Shale/Mudstone/Siltstone
	760	770	Shale/Mudstone/Siltstone
	770	780	Shale/Mudstone/Siltstone
	780	790	Shale/Mudstone/Siltstone
	790	805	Shale/Mudstone/Siltstone

Casing Perforations:	Top	Bottom
	270	805

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

4/7/22 8:08 AM

POINT OF DIVERSION SUMMARY

Released to Imaging: 5/19/2022 9:20:27 AM

Eddy County, New Mexico
Latitude 32°06'28", Longitude 103°53'30" NAD27
Land-surface elevation 3,207 feet above NAVD88
The depth of the well is 288 feet below land surface.
This well is completed in the Pecos River Basin alluvial aquifer (N100PCSRVR) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

[Table of data](#)

[Tab-separated data](#)

[Graph of data](#)


[Reselect period](#)


Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Status	Method of measurement	Measuring agency	Source of measurement	Water level appropriate
1958-08-21		D	62610		2972.36	NGVD29	1	Z			
1958-08-21		D	62611		2974.00	NAVD88	1	Z			
1958-08-21		D	72019	233.00			1	Z			
1959-02-05		D	62610		2939.26	NGVD29	P	Z			
1959-02-05		D	62611		2940.90	NAVD88	P	Z			
1959-02-05		D	72019	266.10			P	Z			
1983-02-01		D	62610		2945.48	NGVD29	1	Z			
1983-02-01		D	62611		2947.12	NAVD88	1	Z			
1983-02-01		D	72019	259.88			1	Z			
1998-01-28		D	62610		2940.76	NGVD29	1	S			
1998-01-28		D	62611		2942.40	NAVD88	1	S			
1998-01-28		D	72019	264.60			1	S			




APPENDIX B

Lithologic / Soil Sampling Logs

								Sample Name: BH01		Date: 04/20/2022	
								Site Name: PLU Ross Ranch 33-25-30			
								Incident Number: NAPP2204125212			
								Job Number: 03E1558006			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: AC		Method: Hand Auger	
Coordinates: 32.094083, -103.892166								Hole Diameter: 4"		Total Depth: 2'	
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. No correction factors included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
						0					
D	660.8	0.0	N	BH01	0.5	0.5	CCHE	CALICHE, white-tan, well cemented, some angular clasts, no stain, no odor.			
D	168.0	0.0	N	BH01A	1	1	SP	SAND, brown to dark brown, poorly graded, fine grain, no stain, no odor.			
						1.5	SP	SAA			
D	<168	0.0	N	BH01B	2	2	SP	SAA			
TD @ 2 feet bgs											

								Sample Name: BH02		Date: 04/20/2022	
								Site Name: PLU Ross Ranch 33-25-30			
								Incident Number: NAPP2204125212			
								Job Number: 03E1558006			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: AC		Method: Hand Auger	
Coordinates: 32.094022, -103.892217								Hole Diameter: 4"		Total Depth: 2'	
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. No correction factors included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
						0					
D	952	0.1	N	BH02	0.5	0.5	CCHE	CALICHE, white-tan, well cemented, some angular clasts, no stain, no odor.			
D	168	0.2	N	BH02A	1	1	SP	SAND, brown to dark brown, poorly graded, fine grain, no stain, no odor.			
						1.5	SP	SAA			
D	<168	0.0	N	BH02B	2	2	SP	SAA			
TD @ 2 feet bgs											

								Sample Name: BH03		Date: 04/20/2022	
								Site Name: PLU Ross Ranch 33-25-30			
								Incident Number: NAPP2204125212			
								Job Number: 03E1558006			
LITHOLOGIC / SOIL SAMPLING LOG								Logged By: AC		Method: Hand Auger	
Coordinates: 32.093958, -103.892156								Hole Diameter: 4"		Total Depth: 2'	
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. No correction factors included.											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions			
						0					
D	952	0.0	N	BH03	0.5	0.5	CCHE	CALICHE, white-tan, well cemented, some angular clasts, no stain, no odor.			
D	168	0.2	N	BH03A	1	1	SP	SAND, brown to dark brown, poorly graded, fine grain, no stain, no odor.			
						1.5	SP	SAA			
D	<168	0.1	N	BH03B	2	2	SP	SAA			
TD @ 2 feet bgs											



APPENDIX C

Photographic Log



Photographic Log

XTO Energy, Inc.

PLU Ross Ranch 33-25-20

Incident Number nAPP2204125212



Photograph 1

Date: April 20, 2022

Description: Photo of flare area taken during delineation activities.



Photograph 2

Date: April 20, 2022

Description: Photo of BH03 taken during delineation activities.



APPENDIX D

Laboratory Analytical Reports & Chain-of-Custody Documentation



Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2218-1

Laboratory Sample Delivery Group: 03E1558006

Client Project/Site: PLU RR 33-25-30

For:

Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Kalei Jennings

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:
4/22/2022 3:28:23 PM

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

LINKS

Review your project
results through
TotalAccess

Have a Question?



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: PLU RR 33-25-30

Laboratory Job ID: 890-2218-1
SDG: 03E1558006

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Client Sample Results	5
Surrogate Summary	13
QC Sample Results	14
QC Association Summary	18
Lab Chronicle	21
Certification Summary	24
Method Summary	25
Sample Summary	26
Chain of Custody	27
Receipt Checklists	29

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

Definitions/Glossary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery 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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Job ID: 890-2218-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-2218-1****Receipt**

The samples were received on 4/20/2022 4:22 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 11.6°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-23938 and analytical batch 880-23884 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 samples were outside control limits: (MB 880-23912/5-A) and (MB 880-23938/5-A). 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 matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-23944 and analytical batch 880-23891 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: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH01

Lab Sample ID: 890-2218-1

Date Collected: 04/20/22 09:45

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:16	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:16	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:16	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 06:16	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:16	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 06:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	04/21/22 11:12	04/22/22 06:16	1
1,4-Difluorobenzene (Surr)	106		70 - 130	04/21/22 11:12	04/22/22 06:16	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			04/22/22 11:15	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			04/22/22 10:26	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		04/21/22 13:57	04/21/22 23:53	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/21/22 23:53	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/21/22 23:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	04/21/22 13:57	04/21/22 23:53	1
o-Terphenyl	107		70 - 130	04/21/22 13:57	04/21/22 23:53	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	330		4.97	mg/Kg			04/21/22 20:38	1

Client Sample ID: BH01A

Lab Sample ID: 890-2218-2

Date Collected: 04/20/22 09:55

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:43	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:43	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:43	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/21/22 11:12	04/22/22 06:43	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 06:43	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/21/22 11:12	04/22/22 06:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	04/21/22 11:12	04/22/22 06:43	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH01A

Lab Sample ID: 890-2218-2

Date Collected: 04/20/22 09:55

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 1

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	96		70 - 130	04/21/22 11:12	04/22/22 06:43	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			04/22/22 11:15	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			04/22/22 10:26	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		04/21/22 13:57	04/22/22 00:14	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 00:14	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 00:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130			04/21/22 13:57	04/22/22 00:14	1
o-Terphenyl	98		70 - 130			04/21/22 13:57	04/22/22 00:14	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.1		4.98	mg/Kg			04/21/22 20:47	1

Client Sample ID: BH01B

Lab Sample ID: 890-2218-3

Date Collected: 04/20/22 10:05

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 2

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:10	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:10	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:10	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		04/21/22 11:12	04/22/22 07:10	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:10	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		04/21/22 11:12	04/22/22 07:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	04/21/22 11:12	04/22/22 07:10	1
1,4-Difluorobenzene (Surr)	99		70 - 130	04/21/22 11:12	04/22/22 07:10	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			04/22/22 11:15	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			04/22/22 10:26	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH01B

Lab Sample ID: 890-2218-3

Date Collected: 04/20/22 10:05

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 2

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		04/21/22 13:57	04/22/22 00:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 00:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 00:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130			04/21/22 13:57	04/22/22 00:36	1
o-Terphenyl	115		70 - 130			04/21/22 13:57	04/22/22 00:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31.3		5.00	mg/Kg			04/21/22 20:56	1

Client Sample ID: BH02

Lab Sample ID: 890-2218-4

Date Collected: 04/20/22 10:15

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:37	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:37	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:37	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 07:37	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 07:37	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 07:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130			04/21/22 11:12	04/22/22 07:37	1
1,4-Difluorobenzene (Surr)	96		70 - 130			04/21/22 11:12	04/22/22 07:37	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			04/22/22 11:15	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			04/22/22 10:26	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		04/21/22 13:57	04/22/22 00:57	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 00:57	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 00:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			04/21/22 13:57	04/22/22 00:57	1
o-Terphenyl	97		70 - 130			04/21/22 13:57	04/22/22 00:57	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH02

Lab Sample ID: 890-2218-4

Date Collected: 04/20/22 10:15

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	699		4.99	mg/Kg			04/21/22 21:06	1

Client Sample ID: BH02A

Lab Sample ID: 890-2218-5

Date Collected: 04/20/22 10:25

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 08:05	1
Toluene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 08:05	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 08:05	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		04/21/22 11:12	04/22/22 08:05	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 08:05	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		04/21/22 11:12	04/22/22 08:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130			04/21/22 11:12	04/22/22 08:05	1
1,4-Difluorobenzene (Surr)	103		70 - 130			04/21/22 11:12	04/22/22 08:05	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			04/22/22 11:15	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			04/22/22 10:26	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		04/21/22 13:57	04/22/22 01:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		04/21/22 13:57	04/22/22 01:19	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/21/22 13:57	04/22/22 01:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			04/21/22 13:57	04/22/22 01:19	1
o-Terphenyl	96		70 - 130			04/21/22 13:57	04/22/22 01:19	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	132		5.00	mg/Kg			04/21/22 21:15	1

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Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH02B

Lab Sample ID: 890-2218-6

Date Collected: 04/20/22 10:30

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 2

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 09:54	1
Toluene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 09:54	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 09:54	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		04/21/22 11:12	04/22/22 09:54	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 09:54	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		04/21/22 11:12	04/22/22 09:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	04/21/22 11:12	04/22/22 09:54	1
1,4-Difluorobenzene (Surr)	99		70 - 130	04/21/22 11:12	04/22/22 09:54	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			04/22/22 11:15	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			04/22/22 10:26	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		04/21/22 13:57	04/22/22 01:41	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 01:41	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	04/21/22 13:57	04/22/22 01:41	1
o-Terphenyl	109		70 - 130	04/21/22 13:57	04/22/22 01:41	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	57.8		4.95	mg/Kg			04/21/22 21:24	1

Client Sample ID: BH03

Lab Sample ID: 890-2218-7

Date Collected: 04/20/22 10:35

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 10:20	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 10:20	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 10:20	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 10:20	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 10:20	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 10:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		70 - 130	04/21/22 11:12	04/22/22 10:20	1

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Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH03

Lab Sample ID: 890-2218-7

Date Collected: 04/20/22 10:35

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	99		70 - 130	04/21/22 11:12	04/22/22 10:20	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			04/22/22 11:15	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	148		50.0	mg/Kg			04/22/22 10:26	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		04/21/22 13:57	04/22/22 02:03	1
Diesel Range Organics (Over C10-C28)	148		50.0	mg/Kg		04/21/22 13:57	04/22/22 02:03	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/22/22 02:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130			04/21/22 13:57	04/22/22 02:03	1
o-Terphenyl	102		70 - 130			04/21/22 13:57	04/22/22 02:03	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	633		5.05	mg/Kg			04/21/22 21:52	1

Client Sample ID: BH03A

Lab Sample ID: 890-2218-8

Date Collected: 04/20/22 10:40

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 10:47	1
Toluene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 10:47	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 10:47	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		04/21/22 11:12	04/22/22 10:47	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 10:47	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		04/21/22 11:12	04/22/22 10:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		70 - 130	04/21/22 11:12	04/22/22 10:47	1
1,4-Difluorobenzene (Surr)	97		70 - 130	04/21/22 11:12	04/22/22 10:47	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			04/22/22 11:15	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			04/22/22 10:26	1

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Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH03A

Lab Sample ID: 890-2218-8

Date Collected: 04/20/22 10:40

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 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		04/21/22 13:57	04/22/22 02:25	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		04/21/22 13:57	04/22/22 02:25	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/21/22 13:57	04/22/22 02:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130			04/21/22 13:57	04/22/22 02:25	1
o-Terphenyl	94		70 - 130			04/21/22 13:57	04/22/22 02:25	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	132		4.99	mg/Kg			04/21/22 22:01	1

Client Sample ID: BH03B

Lab Sample ID: 890-2218-9

Date Collected: 04/20/22 10:45

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 2

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 11:14	1
Toluene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 11:14	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 11:14	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		04/21/22 11:12	04/22/22 11:14	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		04/21/22 11:12	04/22/22 11:14	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		04/21/22 11:12	04/22/22 11:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130			04/21/22 11:12	04/22/22 11:14	1
1,4-Difluorobenzene (Surr)	95		70 - 130			04/21/22 11:12	04/22/22 11:14	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			04/22/22 11:15	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			04/22/22 10:26	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		04/21/22 13:57	04/22/22 02:46	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		04/21/22 13:57	04/22/22 02:46	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/21/22 13:57	04/22/22 02:46	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130			04/21/22 13:57	04/22/22 02:46	1
o-Terphenyl	106		70 - 130			04/21/22 13:57	04/22/22 02:46	1

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Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH03B
Date Collected: 04/20/22 10:45
Date Received: 04/20/22 16:22
Sample Depth: 2

Lab Sample ID: 890-2218-9
Matrix: Solid

Method: 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	47.9		4.98	mg/Kg			04/21/22 22:28	1	

Surrogate Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	BFB1	DFBZ1				
		(70-130)	(70-130)				
880-13942-A-1-A MS	Matrix Spike	96	100				
880-13942-A-1-B MSD	Matrix Spike Duplicate	94	99				
890-2218-1	BH01	98	106				
890-2218-2	BH01A	97	96				
890-2218-3	BH01B	94	99				
890-2218-4	BH02	92	96				
890-2218-5	BH02A	99	103				
890-2218-6	BH02B	90	99				
890-2218-7	BH03	92	99				
890-2218-8	BH03A	94	97				
890-2218-9	BH03B	88	95				
LCS 880-23938/1-A	Lab Control Sample	87	101				
LCSD 880-23938/2-A	Lab Control Sample Dup	86	103				
MB 880-23912/5-A	Method Blank	64 S1-	89				
MB 880-23938/5-A	Method Blank	67 S1-	91				
Surrogate Legend							
BFB = 4-Bromofluorobenzene (Surr)							
DFBZ = 1,4-Difluorobenzene (Surr)							

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	1CO1	OTPH1				
		(70-130)	(70-130)				
890-2216-A-2-C MS	Matrix Spike	79	73				
890-2216-A-2-D MSD	Matrix Spike Duplicate	82	75				
890-2218-1	BH01	107	107				
890-2218-2	BH01A	103	98				
890-2218-3	BH01B	113	115				
890-2218-4	BH02	97	97				
890-2218-5	BH02A	97	96				
890-2218-6	BH02B	107	109				
890-2218-7	BH03	105	102				
890-2218-8	BH03A	95	94				
890-2218-9	BH03B	108	106				
LCS 880-23944/2-A	Lab Control Sample	100	90				
LCSD 880-23944/3-A	Lab Control Sample Dup	104	94				
MB 880-23944/1-A	Method Blank	95	100				
Surrogate Legend							
1CO = 1-Chlorooctane							
OTPH = o-Terphenyl							

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-23912/5-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23912

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/21/22 09:54	04/21/22 12:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	04/21/22 09:54	04/21/22 12:11	1
1,4-Difluorobenzene (Surr)	89		70 - 130	04/21/22 09:54	04/21/22 12:11	1

Lab Sample ID: MB 880-23938/5-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/21/22 11:12	04/22/22 03:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	67	S1-	70 - 130	04/21/22 11:12	04/22/22 03:35	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/21/22 11:12	04/22/22 03:35	1

Lab Sample ID: LCS 880-23938/1-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09640		mg/Kg		96	70 - 130
Toluene	0.100	0.09108		mg/Kg		91	70 - 130
Ethylbenzene	0.100	0.09337		mg/Kg		93	70 - 130
m-Xylene & p-Xylene	0.200	0.1778		mg/Kg		89	70 - 130
o-Xylene	0.100	0.1152		mg/Kg		115	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	87		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: LCSD 880-23938/2-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08835		mg/Kg		88	70 - 130	9	35

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

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

Lab Sample ID: LCSD 880-23938/2-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08353		mg/Kg		84	70 - 130	9	35
Ethylbenzene	0.100	0.08102		mg/Kg		81	70 - 130	14	35
m-Xylene & p-Xylene	0.200	0.1601		mg/Kg		80	70 - 130	10	35
o-Xylene	0.100	0.09035		mg/Kg		90	70 - 130	24	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: 880-13942-A-1-A MS

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0996	0.08937		mg/Kg		90	70 - 130
Toluene	<0.00200	U	0.0996	0.09115		mg/Kg		92	70 - 130
Ethylbenzene	<0.00200	U	0.0996	0.07588		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.199	0.1269	F1	mg/Kg		64	70 - 130
o-Xylene	<0.00200	U	0.0996	0.08863		mg/Kg		89	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: 880-13942-A-1-B MSD

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0992	0.09737		mg/Kg		98	70 - 130	9	35
Toluene	<0.00200	U	0.0992	0.09165		mg/Kg		92	70 - 130	1	35
Ethylbenzene	<0.00200	U	0.0992	0.07959		mg/Kg		80	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U F1	0.198	0.1212	F1	mg/Kg		61	70 - 130	5	35
o-Xylene	<0.00200	U	0.0992	0.08874		mg/Kg		89	70 - 130	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

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

Lab Sample ID: MB 880-23944/1-A

Matrix: Solid

Analysis Batch: 23891

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23944

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		04/21/22 13:57	04/21/22 21:44	1

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

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

Lab Sample ID: MB 880-23944/1-A

Matrix: Solid

Analysis Batch: 23891

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23944

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		04/21/22 13:57	04/21/22 21:44	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 13:57	04/21/22 21:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130			04/21/22 13:57	04/21/22 21:44	1
o-Terphenyl	100		70 - 130			04/21/22 13:57	04/21/22 21:44	1

Lab Sample ID: LCS 880-23944/2-A

Matrix: Solid

Analysis Batch: 23891

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23944

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	821.9		mg/Kg		82	70 - 130
Diesel Range Organics (Over C10-C28)	1000	972.8		mg/Kg		97	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	100		70 - 130				
o-Terphenyl	90		70 - 130				

Lab Sample ID: LCSD 880-23944/3-A

Matrix: Solid

Analysis Batch: 23891

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23944

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	900.4		mg/Kg		90	70 - 130	9	20
Diesel Range Organics (Over C10-C28)	1000	1002		mg/Kg		100	70 - 130	3	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	104		70 - 130						
o-Terphenyl	94		70 - 130						

Lab Sample ID: 890-2216-A-2-C MS

Matrix: Solid

Analysis Batch: 23891

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 23944

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	716.6		mg/Kg		70	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U F1	999	668.0	F1	mg/Kg		64	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	79		70 - 130						
o-Terphenyl	73		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

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

Lab Sample ID: 890-2216-A-2-D MSD

Matrix: Solid

Analysis Batch: 23891

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 23944

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	791.5		mg/Kg		77	70 - 130	10	20
Diesel Range Organics (Over C10-C28)	<49.9	U F1	999	706.4	F1	mg/Kg		68	70 - 130	6	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	82		70 - 130								
o-Terphenyl	75		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-23900/1-A

Matrix: Solid

Analysis Batch: 23991

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			04/21/22 18:48	1

Lab Sample ID: LCS 880-23900/2-A

Matrix: Solid

Analysis Batch: 23991

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	245.8		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 880-23900/3-A

Matrix: Solid

Analysis Batch: 23991

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	245.1		mg/Kg		98	90 - 110	0	20

Lab Sample ID: 890-2218-6 MS

Matrix: Solid

Analysis Batch: 23991

Client Sample ID: BH02B

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	57.8		248	301.2		mg/Kg		98	90 - 110

Lab Sample ID: 890-2218-6 MSD

Matrix: Solid

Analysis Batch: 23991

Client Sample ID: BH02B

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	57.8		248	313.7		mg/Kg		103	90 - 110	4	20

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QC Association Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

GC VOA

Analysis Batch: 23884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Total/NA	Solid	8021B	23938
890-2218-2	BH01A	Total/NA	Solid	8021B	23938
890-2218-3	BH01B	Total/NA	Solid	8021B	23938
890-2218-4	BH02	Total/NA	Solid	8021B	23938
890-2218-5	BH02A	Total/NA	Solid	8021B	23938
890-2218-6	BH02B	Total/NA	Solid	8021B	23938
890-2218-7	BH03	Total/NA	Solid	8021B	23938
890-2218-8	BH03A	Total/NA	Solid	8021B	23938
890-2218-9	BH03B	Total/NA	Solid	8021B	23938
MB 880-23912/5-A	Method Blank	Total/NA	Solid	8021B	23912
MB 880-23938/5-A	Method Blank	Total/NA	Solid	8021B	23938
LCS 880-23938/1-A	Lab Control Sample	Total/NA	Solid	8021B	23938
LCSD 880-23938/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	23938
880-13942-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	23938
880-13942-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	23938

Prep Batch: 23912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-23912/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 23938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Total/NA	Solid	5035	
890-2218-2	BH01A	Total/NA	Solid	5035	
890-2218-3	BH01B	Total/NA	Solid	5035	
890-2218-4	BH02	Total/NA	Solid	5035	
890-2218-5	BH02A	Total/NA	Solid	5035	
890-2218-6	BH02B	Total/NA	Solid	5035	
890-2218-7	BH03	Total/NA	Solid	5035	
890-2218-8	BH03A	Total/NA	Solid	5035	
890-2218-9	BH03B	Total/NA	Solid	5035	
MB 880-23938/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-23938/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-23938/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-13942-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-13942-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 24028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Total/NA	Solid	Total BTEX	
890-2218-2	BH01A	Total/NA	Solid	Total BTEX	
890-2218-3	BH01B	Total/NA	Solid	Total BTEX	
890-2218-4	BH02	Total/NA	Solid	Total BTEX	
890-2218-5	BH02A	Total/NA	Solid	Total BTEX	
890-2218-6	BH02B	Total/NA	Solid	Total BTEX	
890-2218-7	BH03	Total/NA	Solid	Total BTEX	
890-2218-8	BH03A	Total/NA	Solid	Total BTEX	
890-2218-9	BH03B	Total/NA	Solid	Total BTEX	

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QC Association Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

GC Semi VOA

Analysis Batch: 23891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Total/NA	Solid	8015B NM	23944
890-2218-2	BH01A	Total/NA	Solid	8015B NM	23944
890-2218-3	BH01B	Total/NA	Solid	8015B NM	23944
890-2218-4	BH02	Total/NA	Solid	8015B NM	23944
890-2218-5	BH02A	Total/NA	Solid	8015B NM	23944
890-2218-6	BH02B	Total/NA	Solid	8015B NM	23944
890-2218-7	BH03	Total/NA	Solid	8015B NM	23944
890-2218-8	BH03A	Total/NA	Solid	8015B NM	23944
890-2218-9	BH03B	Total/NA	Solid	8015B NM	23944
MB 880-23944/1-A	Method Blank	Total/NA	Solid	8015B NM	23944
LCS 880-23944/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	23944
LCSD 880-23944/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	23944
890-2216-A-2-C MS	Matrix Spike	Total/NA	Solid	8015B NM	23944
890-2216-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	23944

Prep Batch: 23944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Total/NA	Solid	8015NM Prep	
890-2218-2	BH01A	Total/NA	Solid	8015NM Prep	
890-2218-3	BH01B	Total/NA	Solid	8015NM Prep	
890-2218-4	BH02	Total/NA	Solid	8015NM Prep	
890-2218-5	BH02A	Total/NA	Solid	8015NM Prep	
890-2218-6	BH02B	Total/NA	Solid	8015NM Prep	
890-2218-7	BH03	Total/NA	Solid	8015NM Prep	
890-2218-8	BH03A	Total/NA	Solid	8015NM Prep	
890-2218-9	BH03B	Total/NA	Solid	8015NM Prep	
MB 880-23944/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-23944/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-23944/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2216-A-2-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2216-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 24018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Total/NA	Solid	8015 NM	
890-2218-2	BH01A	Total/NA	Solid	8015 NM	
890-2218-3	BH01B	Total/NA	Solid	8015 NM	
890-2218-4	BH02	Total/NA	Solid	8015 NM	
890-2218-5	BH02A	Total/NA	Solid	8015 NM	
890-2218-6	BH02B	Total/NA	Solid	8015 NM	
890-2218-7	BH03	Total/NA	Solid	8015 NM	
890-2218-8	BH03A	Total/NA	Solid	8015 NM	
890-2218-9	BH03B	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 23900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Soluble	Solid	DI Leach	
890-2218-2	BH01A	Soluble	Solid	DI Leach	
890-2218-3	BH01B	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

HPLC/IC (Continued)

Leach Batch: 23900 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-4	BH02	Soluble	Solid	DI Leach	
890-2218-5	BH02A	Soluble	Solid	DI Leach	
890-2218-6	BH02B	Soluble	Solid	DI Leach	
890-2218-7	BH03	Soluble	Solid	DI Leach	
890-2218-8	BH03A	Soluble	Solid	DI Leach	
890-2218-9	BH03B	Soluble	Solid	DI Leach	
MB 880-23900/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-23900/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-23900/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2218-6 MS	BH02B	Soluble	Solid	DI Leach	
890-2218-6 MSD	BH02B	Soluble	Solid	DI Leach	

Analysis Batch: 23991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2218-1	BH01	Soluble	Solid	300.0	23900
890-2218-2	BH01A	Soluble	Solid	300.0	23900
890-2218-3	BH01B	Soluble	Solid	300.0	23900
890-2218-4	BH02	Soluble	Solid	300.0	23900
890-2218-5	BH02A	Soluble	Solid	300.0	23900
890-2218-6	BH02B	Soluble	Solid	300.0	23900
890-2218-7	BH03	Soluble	Solid	300.0	23900
890-2218-8	BH03A	Soluble	Solid	300.0	23900
890-2218-9	BH03B	Soluble	Solid	300.0	23900
MB 880-23900/1-A	Method Blank	Soluble	Solid	300.0	23900
LCS 880-23900/2-A	Lab Control Sample	Soluble	Solid	300.0	23900
LCSD 880-23900/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	23900
890-2218-6 MS	BH02B	Soluble	Solid	300.0	23900
890-2218-6 MSD	BH02B	Soluble	Solid	300.0	23900

Lab Chronicle

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH01

Lab Sample ID: 890-2218-1

Date Collected: 04/20/22 09:45

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 06:16	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/21/22 23:53	AJ	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 20:38	CH	XEN MID

Client Sample ID: BH01A

Lab Sample ID: 890-2218-2

Date Collected: 04/20/22 09:55

Matrix: Solid

Date Received: 04/20/22 16:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 06:43	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 00:14	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 20:47	CH	XEN MID

Client Sample ID: BH01B

Lab Sample ID: 890-2218-3

Date Collected: 04/20/22 10:05

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 07:10	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 00:36	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 20:56	CH	XEN MID

Client Sample ID: BH02

Lab Sample ID: 890-2218-4

Date Collected: 04/20/22 10:15

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 07:37	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID

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Lab Chronicle

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH02

Lab Sample ID: 890-2218-4

Date Collected: 04/20/22 10:15

Matrix: Solid

Date Received: 04/20/22 16:22

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			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 00:57	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 21:06	CH	XEN MID

Client Sample ID: BH02A

Lab Sample ID: 890-2218-5

Date Collected: 04/20/22 10:25

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 08:05	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 01:19	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 21:15	CH	XEN MID

Client Sample ID: BH02B

Lab Sample ID: 890-2218-6

Date Collected: 04/20/22 10:30

Matrix: Solid

Date Received: 04/20/22 16:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 09:54	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 01:41	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 21:24	CH	XEN MID

Client Sample ID: BH03

Lab Sample ID: 890-2218-7

Date Collected: 04/20/22 10:35

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 10:20	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 02:03	AJ	XEN MID

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Lab Chronicle

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Client Sample ID: BH03

Lab Sample ID: 890-2218-7

Date Collected: 04/20/22 10:35

Matrix: Solid

Date Received: 04/20/22 16:22

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	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 21:52	CH	XEN MID

Client Sample ID: BH03A

Lab Sample ID: 890-2218-8

Date Collected: 04/20/22 10:40

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 10:47	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 02:25	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 22:01	CH	XEN MID

Client Sample ID: BH03B

Lab Sample ID: 890-2218-9

Date Collected: 04/20/22 10:45

Matrix: Solid

Date Received: 04/20/22 16:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 11:14	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24028	04/22/22 11:15	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24018	04/22/22 10:26	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	23944	04/21/22 13:57	DM	XEN MID
Total/NA	Analysis	8015B NM		1			23891	04/22/22 02:46	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 22:28	CH	XEN MID

Laboratory References:

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

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

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	T104704400-21-22	06-30-22

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

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

Method Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

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

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

Sample Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2218-1
SDG: 03E1558006

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2218-1	BH01	Solid	04/20/22 09:45	04/20/22 16:22	0.5
890-2218-2	BH01A	Solid	04/20/22 09:55	04/20/22 16:22	1
890-2218-3	BH01B	Solid	04/20/22 10:05	04/20/22 16:22	2
890-2218-4	BH02	Solid	04/20/22 10:15	04/20/22 16:22	0.5
890-2218-5	BH02A	Solid	04/20/22 10:25	04/20/22 16:22	1
890-2218-6	BH02B	Solid	04/20/22 10:30	04/20/22 16:22	2
890-2218-7	BH03	Solid	04/20/22 10:35	04/20/22 16:22	0.5
890-2218-8	BH03A	Solid	04/20/22 10:40	04/20/22 16:22	1
890-2218-9	BH03B	Solid	04/20/22 10:45	04/20/22 16:22	2

Chain of Custody



Environment Testing

Xenco

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

Work Order No:

www.xenco.com Page of 1

Project Manager:	Kyle Jennings	Bill to: (if different)	Adrian Baker
Company Name:	Ensolium LLC	Company Name:	XCO Energy Inc.
Address:	705 W Wadley Ave. Suite 200	Address:	3104 E Green St.
City, State ZIP:	Midland TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	817-683-2503	Email:	Kjennings@ensolium.com

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

ANALYSIS REQUEST				Preservative Codes																																																																																											
Project Name:	Turn Around	Pres. Code																																																																																													
DLW RR 33-25-30	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush				None: NO Cool: Cool HCL: HC H ₂ SO ₄ : H ₂ H ₃ PO ₄ : HP NaHSO ₄ : NABIS Na ₂ S ₂ O ₅ : NaSO ₃ Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC																																																																																										
Project Number:	0361558006	Due Date:	24 hr																																																																																												
Project Location:	Eddy	TAT starts the day received by the lab, if received by 4:30pm																																																																																													
Sampler's Name:	Alexis Castro																																																																																														
PO #:																																																																																															
<div style="text-align: center;"> <p>890-2218 Chain of Custody</p> </div>																																																																																															
<table border="1"> <thead> <tr> <th>Sample Identification</th> <th>Matrix</th> <th>Date Sampled</th> <th>Time Sampled</th> <th>Depth</th> <th>Grab/Comp</th> <th># of Cont</th> <th>Parameters</th> <th>Sample Comments</th> </tr> </thead> <tbody> <tr> <td>BH01</td> <td>S</td> <td>04/20/24</td> <td>0945</td> <td>0.5'</td> <td></td> <td>1</td> <td></td> <td>JNC: NAPP 2204125212</td> </tr> <tr> <td>BH01A</td> <td></td> <td></td> <td>0955</td> <td>1'</td> <td></td> <td></td> <td></td> <td>CC: 108111001</td> </tr> <tr> <td>BH01B</td> <td></td> <td></td> <td>1005</td> <td>2'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BH02</td> <td></td> <td></td> <td>1015</td> <td>0.5'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BH02A</td> <td></td> <td></td> <td>1025</td> <td>1'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BH02B</td> <td></td> <td></td> <td>1030</td> <td>2'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BH03</td> <td></td> <td></td> <td>1035</td> <td>0.5'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BH03A</td> <td></td> <td></td> <td>1040</td> <td>1'</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BH03B</td> <td></td> <td></td> <td>1045</td> <td>2'</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Parameters	Sample Comments	BH01	S	04/20/24	0945	0.5'		1		JNC: NAPP 2204125212	BH01A			0955	1'				CC: 108111001	BH01B			1005	2'					BH02			1015	0.5'					BH02A			1025	1'					BH02B			1030	2'					BH03			1035	0.5'					BH03A			1040	1'					BH03B			1045	2'				
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont	Parameters	Sample Comments																																																																																							
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BH03A			1040	1'																																																																																											
BH03B			1045	2'																																																																																											

Total 2007/6010 200.8/6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ti Sn U V Zn
 Circle Method(s) and Metal(s) to be analyzed TCLP/SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U Hg: 1631/245.1/7470/7471

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

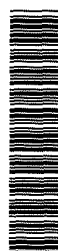
Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	4/20/22 4:02

Revised Date: 08/25/2020 Rev. 2020.2

Eurofins Carlsbad

1089 N Canal St.
Carlsbad, NM 88220
Phone. 575-988-3199 Fax 575-988-3199

Chain of Custody Record



Environment Testing America

Client Information (Sub Contract Lab)				Sampler	Lab PM	Center Tracking No(s)	COC No.					
Client Contact:				Phone:	Kramer Jessica		880-776-1					
Shipping/Receiving					E-Mail	State of Origin	Page					
Eurofins Environment Testing South Cent					Jessica.Kramer@eurofins.com	New Mexico	Page 1 of 1					
Address				Due Date Requested	Accreditations Required (See note):		Job #					
1211 W Florida Ave				4/22/2022	NELAP - Texas		880-2218-1					
City				TAT Requested (days):	Analysis Requested							
Midland												
State, Zip												
TX 79701												
Phone				PO #								
432-704-5440 (Tel)												
Email				WO #								
Project Name:				Project #								
PLU RR 33-25-30				89000093								
Site				SSOW#								
Sample Identification - Client ID (Lab ID)				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers		Special Instructions/Note.
BH01 (890-2218-1)		4/20/22	09 45	Mountain	Solid			X	X	X	X	
BH01A (890-2218-2)		4/20/22	09 55	Mountain	Solid			X	X	X	X	
BH01B (890-2218-3)		4/20/22	10 05	Mountain	Solid			X	X	X	X	
BH02 (890-2218-4)		4/20/22	10 15	Mountain	Solid			X	X	X	X	
BH02A (890-2218-5)		4/20/22	10 25	Mountain	Solid			X	X	X	X	
BH02B (890-2218-6)		4/20/22	10 30	Mountain	Solid			X	X	X	X	
BH03 (890-2218-7)		4/20/22	10 35	Mountain	Solid			X	X	X	X	
BH03A (890-2218-8)		4/20/22	10 40	Mountain	Solid			X	X	X	X	
BH03B (890-2218-9)		4/20/22	10 45	Mountain	Solid			X	X	X	X	
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis, the sample must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other institutions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.												
Possible Hazard Identification				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)								
Unconfirmed				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Deliverable Requested I II III IV Other (specify)				Primary Deliverable Rank 2				Special Instructions/QAC Requirements				
Empty Kit Relinquished by				Date	Time	Method of Shipment:						
Relinquished by				Date/Time	Company	Received by						
Relinquished by				Date/Time	Company	Received by						
Relinquished by				Date/Time	Company	Received by						
Custody Seals Intact:				Custody Seal No		Cooler Temperature(s) °C and Other Remarks						
A Yes A No												

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2218-1

SDG Number: 03E1558006

Login Number: 2218

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: 890-2218-1

SDG Number: 03E1558006

Login Number: 2218

List Number: 2

Creator: Teel, Brianna

List Source: Eurofins Midland

List Creation: 04/21/22 01:11 PM

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



Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-2219-1
Laboratory Sample Delivery Group: 03E1558006
Client Project/Site: PLU RR 33-25-30

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

Attn: Kalei Jennings

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:
4/25/2022 1:08:31 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: PLU RR 33-25-30

Laboratory Job ID: 890-2219-1
SDG: 03E1558006

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Client Sample Results	5
Surrogate Summary	7
QC Sample Results	8
QC Association Summary	14
Lab Chronicle	16
Certification Summary	17
Method Summary	18
Sample Summary	19
Chain of Custody	20
Receipt Checklists	22

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

Definitions/Glossary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery 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.
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: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Job ID: 890-2219-1**Laboratory: Eurofins Carlsbad****Narrative****Job Narrative
890-2219-1****Receipt**

The samples were received on 4/20/2022 4:22 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 11.6°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-23938 and analytical batch 880-23884 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 matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-23946 and analytical batch 880-24090 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 8015MOD_NM: Surrogate recovery for the following sample was outside control limits: (LCSD 880-23947/3-A). 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.

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: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Client Sample ID: SS01

Lab Sample ID: 890-2219-1

Date Collected: 04/20/22 10:50

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 11:40	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 11:40	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 11:40	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 11:40	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 11:40	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/21/22 11:12	04/22/22 11:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130	04/21/22 11:12	04/22/22 11:40	1
1,4-Difluorobenzene (Surr)	99		70 - 130	04/21/22 11:12	04/22/22 11:40	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			04/22/22 13:34	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	60.6		49.9	mg/Kg			04/25/22 09:39	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		04/21/22 14:06	04/23/22 18:59	1
Diesel Range Organics (Over C10-C28)	60.6		49.9	mg/Kg		04/21/22 14:06	04/23/22 18:59	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/21/22 14:06	04/23/22 18:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130	04/21/22 14:06	04/23/22 18:59	1
o-Terphenyl	103		70 - 130	04/21/22 14:06	04/23/22 18:59	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15.8		4.96	mg/Kg			04/21/22 22:37	1

Client Sample ID: SS02

Lab Sample ID: 890-2219-2

Date Collected: 04/20/22 10:55

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 12:07	1
Toluene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 12:07	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 12:07	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		04/21/22 11:12	04/22/22 12:07	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		04/21/22 11:12	04/22/22 12:07	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		04/21/22 11:12	04/22/22 12:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	04/21/22 11:12	04/22/22 12:07	1

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Client Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Client Sample ID: SS02

Lab Sample ID: 890-2219-2

Date Collected: 04/20/22 10:55

Matrix: Solid

Date Received: 04/20/22 16:22

Sample Depth: 0.5

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	96		70 - 130	04/21/22 11:12	04/22/22 12:07	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			04/22/22 13:34	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	90		50.0	mg/Kg			04/25/22 09:39	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		04/21/22 14:00	04/23/22 20:36	1
Diesel Range Organics (Over C10-C28)	90		50.0	mg/Kg		04/21/22 14:00	04/23/22 20:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 14:00	04/23/22 20:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130			04/21/22 14:00	04/23/22 20:36	1
o-Terphenyl	108		70 - 130			04/21/22 14:00	04/23/22 20:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13.0		5.00	mg/Kg			04/21/22 22:47	1

Surrogate Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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)
880-13942-A-1-A MS	Matrix Spike	96	100
880-13942-A-1-B MSD	Matrix Spike Duplicate	94	99
890-2219-1	SS01	96	99
890-2219-2	SS02	90	96
LCS 880-23938/1-A	Lab Control Sample	87	101
LCSD 880-23938/2-A	Lab Control Sample Dup	86	103
MB 880-23912/5-A	Method Blank	64 S1-	89
MB 880-23938/5-A	Method Blank	67 S1-	91
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)
890-2217-A-1-B MS	Matrix Spike	92	85
890-2217-A-1-C MSD	Matrix Spike Duplicate	94	86
890-2219-1	SS01	89	103
890-2219-2	SS02	108	108
890-2221-A-1-B MS	Matrix Spike	90	94
890-2221-A-1-C MSD	Matrix Spike Duplicate	88	92
LCS 880-23946/2-A	Lab Control Sample	110	103
LCSD 880-23946/3-A	Lab Control Sample Dup	111	107
MB 880-23946/1-A	Method Blank	99	107
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO2 (70-130)	OTPH2 (70-130)
LCS 880-23947/2-A	Lab Control Sample	108	130
LCSD 880-23947/3-A	Lab Control Sample Dup	110	132 S1+
MB 880-23947/1-A	Method Blank	88	102
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-23912/5-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23912

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 09:54	04/21/22 12:11	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/21/22 09:54	04/21/22 12:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	64	S1-	70 - 130	04/21/22 09:54	04/21/22 12:11	1
1,4-Difluorobenzene (Surr)	89		70 - 130	04/21/22 09:54	04/21/22 12:11	1

Lab Sample ID: MB 880-23938/5-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23938

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/21/22 11:12	04/22/22 03:35	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/21/22 11:12	04/22/22 03:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	67	S1-	70 - 130	04/21/22 11:12	04/22/22 03:35	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/21/22 11:12	04/22/22 03:35	1

Lab Sample ID: LCS 880-23938/1-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09640		mg/Kg		96	70 - 130
Toluene	0.100	0.09108		mg/Kg		91	70 - 130
Ethylbenzene	0.100	0.09337		mg/Kg		93	70 - 130
m-Xylene & p-Xylene	0.200	0.1778		mg/Kg		89	70 - 130
o-Xylene	0.100	0.1152		mg/Kg		115	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	87		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: LCSD 880-23938/2-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08835		mg/Kg		88	70 - 130	9	35

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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

Lab Sample ID: LCSD 880-23938/2-A

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.08353		mg/Kg		84	70 - 130	9	35
Ethylbenzene	0.100	0.08102		mg/Kg		81	70 - 130	14	35
m-Xylene & p-Xylene	0.200	0.1601		mg/Kg		80	70 - 130	10	35
o-Xylene	0.100	0.09035		mg/Kg		90	70 - 130	24	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	86		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: 880-13942-A-1-A MS

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00200	U	0.0996	0.08937		mg/Kg		90	70 - 130
Toluene	<0.00200	U	0.0996	0.09115		mg/Kg		92	70 - 130
Ethylbenzene	<0.00200	U	0.0996	0.07588		mg/Kg		76	70 - 130
m-Xylene & p-Xylene	<0.00401	U F1	0.199	0.1269	F1	mg/Kg		64	70 - 130
o-Xylene	<0.00200	U	0.0996	0.08863		mg/Kg		89	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: 880-13942-A-1-B MSD

Matrix: Solid

Analysis Batch: 23884

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 23938

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0992	0.09737		mg/Kg		98	70 - 130	9	35
Toluene	<0.00200	U	0.0992	0.09165		mg/Kg		92	70 - 130	1	35
Ethylbenzene	<0.00200	U	0.0992	0.07959		mg/Kg		80	70 - 130	5	35
m-Xylene & p-Xylene	<0.00401	U F1	0.198	0.1212	F1	mg/Kg		61	70 - 130	5	35
o-Xylene	<0.00200	U	0.0992	0.08874		mg/Kg		89	70 - 130	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

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

Lab Sample ID: MB 880-23946/1-A

Matrix: Solid

Analysis Batch: 24090

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23946

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		04/21/22 14:00	04/23/22 11:40	1

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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

Lab Sample ID: MB 880-23946/1-A

Matrix: Solid

Analysis Batch: 24090

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23946

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		04/21/22 14:00	04/23/22 11:40	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 14:00	04/23/22 11:40	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130			04/21/22 14:00	04/23/22 11:40	1
o-Terphenyl	107		70 - 130			04/21/22 14:00	04/23/22 11:40	1

Lab Sample ID: LCS 880-23946/2-A

Matrix: Solid

Analysis Batch: 24090

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23946

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	877.3		mg/Kg		88	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1063		mg/Kg		106	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1-Chlorooctane	110		70 - 130				
o-Terphenyl	103		70 - 130				

Lab Sample ID: LCSD 880-23946/3-A

Matrix: Solid

Analysis Batch: 24090

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23946

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	811.8		mg/Kg		81	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	1000	1007		mg/Kg		101	70 - 130	5	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane	111		70 - 130						
o-Terphenyl	107		70 - 130						

Lab Sample ID: 890-2217-A-1-B MS

Matrix: Solid

Analysis Batch: 24090

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 23946

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	820.7		mg/Kg		82	70 - 130
Diesel Range Organics (Over C10-C28)	564	F1	999	1221	F1	mg/Kg		66	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
1-Chlorooctane	92		70 - 130						
o-Terphenyl	85		70 - 130						

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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

Lab Sample ID: 890-2217-A-1-C MSD

Matrix: Solid

Analysis Batch: 24090

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 23946

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	868.4		mg/Kg		87	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	564	F1	999	1236	F1	mg/Kg		67	70 - 130	1	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	94		70 - 130								
o-Terphenyl	86		70 - 130								

Lab Sample ID: MB 880-23947/1-A

Matrix: Solid

Analysis Batch: 24094

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23947

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		04/21/22 14:06	04/23/22 11:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/21/22 14:06	04/23/22 11:38	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/21/22 14:06	04/23/22 11:38	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130			04/21/22 14:06	04/23/22 11:38	1
o-Terphenyl	102		70 - 130			04/21/22 14:06	04/23/22 11:38	1

Lab Sample ID: LCS 880-23947/2-A

Matrix: Solid

Analysis Batch: 24094

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	1000	873.0		mg/Kg		87	70 - 130		
Diesel Range Organics (Over C10-C28)	1000	1038		mg/Kg		104	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
1-Chlorooctane	108		70 - 130						
o-Terphenyl	130		70 - 130						

Lab Sample ID: LCSD 880-23947/3-A

Matrix: Solid

Analysis Batch: 24094

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23947

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	861.5		mg/Kg		86	70 - 130	1	20
Diesel Range Organics (Over C10-C28)	1000	1042		mg/Kg		104	70 - 130	0	20

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QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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

Lab Sample ID: LCSD 880-23947/3-A

Matrix: Solid

Analysis Batch: 24094

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23947

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	110		70 - 130
o-Terphenyl	132	S1+	70 - 130

Lab Sample ID: 890-2221-A-1-B MS

Matrix: Solid

Analysis Batch: 24094

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 23947

	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	956.1		mg/Kg		94	70 - 130	
Diesel Range Organics (Over C10-C28)	<49.9	U	999	851.5		mg/Kg		83	70 - 130	
Surrogate	%Recovery	Qualifier	Limits							
1-Chlorooctane	90		70 - 130							
o-Terphenyl	94		70 - 130							

Lab Sample ID: 890-2221-A-1-C MSD

Matrix: Solid

Analysis Batch: 24094

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 23947

	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	953.6		mg/Kg		94	70 - 130	0	20	
Diesel Range Organics (Over C10-C28)	<49.9	U	999	838.8		mg/Kg		82	70 - 130	2	20	
Surrogate	%Recovery	Qualifier	Limits									
1-Chlorooctane	88		70 - 130									
o-Terphenyl	92		70 - 130									

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-23900/1-A

Matrix: Solid

Analysis Batch: 23991

Client Sample ID: Method Blank

Prep Type: Soluble

	MB	MB								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil	Fac	
Chloride	<5.00	U	5.00	mg/Kg			04/21/22 18:48		1	

Lab Sample ID: LCS 880-23900/2-A

Matrix: Solid

Analysis Batch: 23991

Client Sample ID: Lab Control Sample

Prep Type: Soluble

	Spike	LCS	LCS						%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits			
Chloride	250	245.8		mg/Kg		98	90 - 110			

Eurofins Carlsbad

QC Sample Results

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-23900/3-A

Matrix: Solid

Analysis Batch: 23991

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	245.1		mg/Kg		98	90 - 110	0	20

Lab Sample ID: 890-2218-A-6-D MS

Matrix: Solid

Analysis Batch: 23991

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	57.8		248	301.2		mg/Kg		98	90 - 110		

Lab Sample ID: 890-2218-A-6-E MSD

Matrix: Solid

Analysis Batch: 23991

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	57.8		248	313.7		mg/Kg		103	90 - 110	4	20

QC Association Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

GC VOA

Analysis Batch: 23884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Total/NA	Solid	8021B	23938
890-2219-2	SS02	Total/NA	Solid	8021B	23938
MB 880-23912/5-A	Method Blank	Total/NA	Solid	8021B	23912
MB 880-23938/5-A	Method Blank	Total/NA	Solid	8021B	23938
LCS 880-23938/1-A	Lab Control Sample	Total/NA	Solid	8021B	23938
LCSD 880-23938/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	23938
880-13942-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	23938
880-13942-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	23938

Prep Batch: 23912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-23912/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 23938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Total/NA	Solid	5035	
890-2219-2	SS02	Total/NA	Solid	5035	
MB 880-23938/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-23938/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-23938/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-13942-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-13942-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 24050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Total/NA	Solid	Total BTEX	
890-2219-2	SS02	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 23946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-2	SS02	Total/NA	Solid	8015NM Prep	
MB 880-23946/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-23946/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-23946/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2217-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2217-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Prep Batch: 23947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Total/NA	Solid	8015NM Prep	
MB 880-23947/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-23947/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-23947/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2221-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2221-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 24090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-2	SS02	Total/NA	Solid	8015B NM	23946

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QC Association Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

GC Semi VOA (Continued)

Analysis Batch: 24090 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-23946/1-A	Method Blank	Total/NA	Solid	8015B NM	23946
LCS 880-23946/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	23946
LCSD 880-23946/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	23946
890-2217-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	23946
890-2217-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	23946

Analysis Batch: 24094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Total/NA	Solid	8015B NM	23947
MB 880-23947/1-A	Method Blank	Total/NA	Solid	8015B NM	23947
LCS 880-23947/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	23947
LCSD 880-23947/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	23947
890-2221-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	23947
890-2221-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	23947

Analysis Batch: 24132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Total/NA	Solid	8015 NM	
890-2219-2	SS02	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 23900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Soluble	Solid	DI Leach	
890-2219-2	SS02	Soluble	Solid	DI Leach	
MB 880-23900/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-23900/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-23900/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2218-A-6-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2218-A-6-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 23991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2219-1	SS01	Soluble	Solid	300.0	23900
890-2219-2	SS02	Soluble	Solid	300.0	23900
MB 880-23900/1-A	Method Blank	Soluble	Solid	300.0	23900
LCS 880-23900/2-A	Lab Control Sample	Soluble	Solid	300.0	23900
LCSD 880-23900/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	23900
890-2218-A-6-D MS	Matrix Spike	Soluble	Solid	300.0	23900
890-2218-A-6-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	23900

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Lab Chronicle

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Client Sample ID: SS01

Lab Sample ID: 890-2219-1

Date Collected: 04/20/22 10:50

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 11:40	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24050	04/22/22 13:34	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24132	04/25/22 09:39	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	23947	04/21/22 14:06	DM	XEN MID
Total/NA	Analysis	8015B NM		1			24094	04/23/22 18:59	AJ	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 22:37	CH	XEN MID

Client Sample ID: SS02

Lab Sample ID: 890-2219-2

Date Collected: 04/20/22 10:55

Matrix: Solid

Date Received: 04/20/22 16:22

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	23938	04/21/22 11:12	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	23884	04/22/22 12:07	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24050	04/22/22 13:34	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24132	04/25/22 09:39	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	23946	04/21/22 14:00	DM	XEN MID
Total/NA	Analysis	8015B NM		1			24090	04/23/22 20:36	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	23900	04/21/22 09:36	CH	XEN MID
Soluble	Analysis	300.0		1			23991	04/21/22 22:47	CH	XEN MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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	T104704400-21-22	06-30-22

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

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

Method Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

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

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

Sample Summary

Client: Ensolum
Project/Site: PLU RR 33-25-30

Job ID: 890-2219-1
SDG: 03E1558006

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2219-1	SS01	Solid	04/20/22 10:50	04/20/22 16:22	0.5
890-2219-2	SS02	Solid	04/20/22 10:55	04/20/22 16:22	0.5

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



Chain of Custody

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

Environment Testing

Work Order No:

Page _____ of _____

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

Project Manager:	Kalei Semmings	Bill to: (if different)	Adrian Baker
Company Name:	Ensolum LLC	Company Name:	XTO Energy Inc.
Address:	705 W. Waller Ave. Suite 240	Address:	3104 E Green St.
City, State ZIP:	Milford, TX 79705	City, State ZIP:	Cookeburg NM, 88720
Phone:	817-683-7503	Email:	K.semmings@ensolum.com

[illegible][illegible][illegible]

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 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 service.

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	M. M. M.	[Signature]	4/20/77 4:22 ²			
3						

Revised Date: 08/25/2020 Rev 2020 2

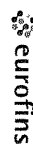
Eurofins Carlsbad

Eurofins Carlsbad

Carlsbad, NM 88220

Phone: 575-988-3199 Fax: 575-988-3199

Chain of Custody Record



**Environment Testing
America**

[illegible]

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2219-1

SDG Number: 03E1558006

Login Number: 2219

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: 890-2219-1

SDG Number: 03E1558006

Login Number: 2219

List Number: 2

Creator: Teel, Brianna

List Source: Eurofins Midland

List Creation: 04/21/22 01:11 PM

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



APPENDIX E

NMOCD Sample Notification

From: [Green, Garrett J](#)
To: [Kalei Jennings](#)
Subject: FW: XTO Site Activities for the week of April 18th
Date: Wednesday, April 27, 2022 2:48:12 PM

[**EXTERNAL EMAIL**]

From: Baker, Adrian
Sent: Friday, April 15, 2022 8:27 AM
To: ocd.enviro@state.nm.us; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Nobui, Jennifer, EMNRD <Jennifer.Nobui@state.nm.us>; Hensley, Chad, EMNRD <Chad.Hensley@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>
Cc: DelawareSpills /SM <DelawareSpills@exxonmobil.com>; Green, Garrett J <garrett.green@exxonmobil.com>
Subject: XTO Site Activities for the week of April 18th

All,

XTO plans to complete final sampling activities at the following sites the week of April 18, 2022.

Tuesday

- JRU Legg / nAPP2204943884

Wednesday

- PLU RR 33-25-30 / nAPP2204125212
- Los Medanos / nAPP2204835360

Thursday

- Los Medanos / nAPP2204835360

Friday

- Pierce Canyon 32 / nAPP2205254615

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

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 102853

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 102853
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NAPP2204125212 PLU ROSS RANCH 33-25-30 TANK BATTERY, thank you. This closure is approved.	5/19/2022